App. F. IX-4

Previous References 1933.4. (C.V)

File No. 29-33
Serial Nos. 1-3

Later References

GENERAL AND REVENUE SECRETARIAT.

Serial Nos. Three.

Part B for December 1933

SUBJECT.

Report on the working of the Mysore Famine Institute for the year 1932-33 and Government Orders thereon.

P(3) To the Director of Agriculture
" Superintendent of Famine Relief
No. D 3000-2 dated 2.12.33

Returned the report.

P 20/12

W.A. 23/3/34

General and Revenue Secretariat

C.V.
File No. 29 of 1933.

Serial No.	
1	From the Dir of Agriculture No Per 25 of 33-34 dated 7/11/33 Sd the annual Report of the Govt Institute for the year ~~ending~~ 1932-33. To the Administration Report Section with compliments for kindly a copy of the report and returning the file. Sd KP 10/11/33 Sd A copy of the report has been retained in the file is herewith returned. 11/11
	Sent with a copy of the Govt Press Bulletin K. 13.11.33 Issue 13/11
2.	To The Superdt. Govt. Printing Bangalore. No. D. 2380 of 17.11.33. Forwd a Copy of the report for being printed and kept ready to be bound with Govt: series To The Dr: of Agriculture in Mysore No. D 2381 of 17.11.33. Forwd a Copy of the above with a request to intimate the Superdt Govt Printing as to the number of Copies required for the D:

NOTE—Contn. Sheet.

TYPIN... GENL. & ...

File No. [illegible] of 193 .

General and Revenue Secretariat

Sent with a draft review
7/12/33

Dev: Secy)

Second Member.

9/12/33

DEW 384 14 DEC. 1933

Secondary Education Board Council
13
No. 3.5.18.3

12.12.33

13/12

14/12

Dewan.

14.12.33

14/12

14-12-33

15.12.33

15/12

TYPING SECTION
15. DEC. 1933
GENL. & REV SEC.

The Director of Agriculture
The Comptroller
No. D. 3000-2/GV. 29-33-3820 12/33.

Reviews the report.

3.

General and Revenue Secretariat | File No. | of 193 .

[App. F. III—2

Serial No.

Subsd with D.S.N.

DEVELOPMENT OFFICE
23. DEC. 1933

Cal 22/12/33
27/12/33 Dewan)

Jm
23-12-33

Submitted to His Highness.

I submit herewith, for His Highness's gracious perusal, the Annual Report on the working of the Mysore Serum Institute for the year 1932-33, with the Government Review thereon.

Mirza M. Ismail

Bangalore,)
23rd December 1933.)

D E W A N.

Record of Cases submitted for the Orders of His Highness the Maharaja.

Subject.

Report on the working of the Mysore Serum Institute for the year 1932-33 and Government review thereon.

Order.

KRM

26/12/33

C. Sec,

M

28-12-33

17-2 (6 332

General and Revenue
Secretariat

Subject. -

Report on the working of the Mysore Serum Institute for the year 1932-33 and Government review thereon.

(*)

31. All urgent or confidential files returned with His Highness' orders may in the absence of instructions or indications to the contrary, be ordinarily circulated to the Members of Council for perusal after the issue of orders.

33. The Secretaries concerned should see that orders in the cases referred to above are issued at once and that the files are returned immediately after to the Chief Secretary for circulation to the Members.

34. In all other cases, the files will first be circulated to the Members of Council at Head-quarters and then sent to the Secretariat concerned for the issue of orders.

Circulated to Members of Council for perusal of His Highness' orders before/after issue of orders. (*Vide Rules* 31, 33 and 34 of the Subsidiary Rules for the conduct of business of Council in the Manual of Council Rules and Procedure.)

*

for *Chief Secretary to Government.*

Through the Secretary to Government,

.....Department.

FIRST MEMBER OF COUNCIL. (Absent from H-D Qrs)

SECOND MEMBER OF COUNCIL.

29/12

Desr. Secy. with Comps.

NOTE.—Contn. sheet.

29.12.33.

29/12

DEPARTMENT OF AGRICULTURE

MYSORE STATE.

In reply please quote in full the Nos. and indicative symbol given below.

BANGALORE,

7th November 1933

No Per. 25 of 33-34.
Encl. a Report in triplicate.

1702

FROM

LESLIE C. COLEMAN, ESQ., M.A., PH.D., C.I.E.,
DIRECTOR OF AGRICULTURE IN MYSORE,
BANGALORE.

9. NOV. 19

DEVELOPMENT

To

S. Abdul Wajid, Esq, B.A.,
Secretary to the Government of Mysore,
Development Department, Bangalore.

C.V. 29-33-1.

SIR,

I have the honor to forward herewith the Annual Report of the Serum Institute for the year ending June 30th 1933.

The marked reduction in the incidence of Rinderpest has enabled the Superintendent and his staff to devote increased attention to research work and to the preparation of sera and vaccines for the control of other important diseases of cattle & sheep. There has thus been a very marked increase in the supply of sera for the control of Haemorrhagic Septicaemia and Black Quarter, two important cattle diseases in Mysore.

The supply in increasing the quantity of Rinderpest Serum and other sera to Government Departments outside Mysore is a gratifying testimony to the quality of the products. I wish to place on record my appreciation of the manner in which Mr. S. D. Achar and the staff working under him have carried out the important work entrusted to them.

I have the honor to be,
Sir,
Your most obedient servant,

Director of Agriculture.

blm.

PART I

A Summary of the of the Mysore Serum Institute, for the year 1932-33.

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It is a matter for gratification that the Serum Institute which was started i 1927 on a temporary basis, was made permaner with effect from 1st April 1933, in consider tion of its importance and usefulness to the State.

Government were also pleased to sanction during the year a reorganisation o the staff and a change in the designation of "the Officer in charge" as "Superintendent " on a revised grade of pay.

In addition to the manufacture of large quantities of Anti Rinderpest Serum and Rinderpest Virus, the preparation of new products such as Rinderpest Goat Virus, Black Quarter Filtrate and Serum, and Haemorrhagic Septicaemia Serum and Vaccine, Sheep-pox Vaccine etc., was undertaken on a larger scale after the Institute was moved into its new habitation at Hebbal, during March 1932.

Two fresh products, viz. Anti Anthrax Serum and Black quarter Bacterin were prepared during this year in the Institute. The former is already being supplied both within the State and to Stations outside. The latter is under test and so far the results are encouraging.

Direct supply of products from the Institute to the Veterinary Inspectors, on indent

was started, this year, instead of through the Superintendent, Civil Veterinary Department, as heretofore. This practise has enabled the Veterinary Inspectors to get their requirements more promptly although it has meant some addition to the heavy work in the Institute.

ADMINISTRATION:- Mr. S.D. Achar was in charge of the Institute and Mr. P.U. Nayar continued to be the Bacteriological Assistant during the year. The latter was on privileg leave for 2½ months from 10-9-1932, when Mr.N. R. Srinivasa Iyengar, Senior-most Veterinary Inspector, acted for him.

BUILDINGS:- Permanent roofing of the cattle sheds is an urgent necessity as the present thatched roofings are causing such inconvenience.

The Reserve Depot was shifted to the Old Rifle Range buildings during the year but as these were not suitable for housing the cattle Government have been pleased to sanction the construction of a suitable cattle shed therefor at an estimated cost of Rs. 6,000/-

Construction of quarters at least for a few officers is an urgent need to facilitate better management.

LIBRARY AND READING ROOM:- A Library and reading room was started during this year and it has now got 32 volumes on technical subjects. 10 Journals have been subscribed for in addition to 6 journals received from the

Civil Veterinary Department and 4 from the the Director of Agriculture.

RINDERPEST BOVINE VIRUS:- 5,20,775 cc. of virus were produced from 1st July 1932 to 30th June 1933 as against 7,20,400 cc. during last year. The number of animals used during the period is 1,139 as against 1,639 animals used last year.

2,51,550 cc. of virus were supplied to the Civil Veterinary Department and 7,300 cc. to Coorg Province, as compared with 5,65,650 cc. and 1,800 cc. respectively during last year. 1,050 cc. of the virus were used for inoculation of Amrit Mahal herd. Thus while there was an increase in the supply made to Coorg the demand for virus within the State was less owing to further decline in the number of outbreaks during the year.

RINDERPEST GOAT VIRUS:- Further work on the use of Rinderpest Goat Virus attenuated by passaging through goats as an immunising agent for rinderpest among cattle was continued. As desired by the Director of Agriculture, a systematic test of Goat Virus on 213 Amrit Mahal Animals of different age ranging from 1 to 5 years, previously unprotected against rinderpest, was conducted near Arsikere, on 17th and 8th February 1933. Over 93% of the inoculated animals showed more or less thermal reaction which soon subsided naturally. At the end of three weeks 85% of the animals were given virulent Bovine Virus. None among the 48 animals so tested

showed any response. To further confirm the result another 15 animals out of the pre tected lot of different ages were inoculated with locally produced Bovine Virus on 2-4-33 after an interval of over 45 days. But ~~xxx~~ not even the least untoward effect was noticed in any of them.

With a view to ascertain the duration of immunity conferred by Goat Virus it is proposed to take up some of the remaining Goat Virus protected animals in lots at different intervals hereafter. Some interesting observations were also made in the course of these experiments.

341 goats were used during the year for fixing and passaging of Rinderpest Virus.

100 cc. of fixed virus were issued for use on the animals of the Imperial Dairy Farm and 300 cc. to the Civil Veterinary Department for use in the field. 60 cc. were used for inoculating the Amrit Mahal herd at Abbangatte Kaval.

~~xxxxxxxxxxxxxxxx~~ANTI RINDERPEST SERUM:- With a stock of 1,14,400 doses of serum at the beginning of the year, 8,04,525 doses of serum were produced within these twelve months. 2,64,500 doses of the serum were supplied to the Civil Veterinary Department during the year, as against 3,10,000 doses during last year.

During the year indents for rinderpest serum from Hydorabad, Baroda, and Coorg, have also been fully complied with, the total

as against 2,82,550 doses during the previous year.

HAEMORRHAGIC SEPTICAEMIA VACCINE:- During the year 40,330 doses of vaccine have been supplied to the Civil Veterinary Department, as against 21,500 doses last year. 1,090 doses of Vaccine were supplied for the first time to Baroda and 1,600 doses to Hyderabad during the present year.

ANTI HAEMORRHAGIC SEPTICAEMIA SERUM:- 30,006 doses of Haemorrhagic Septicaemia Serum were produced. 25,052 2/3 doses were supplied to the Civil Veterinary Department as against 5,500 doses supplied during last year. 17,000 doses of the serum to Hyderabad, and 300 doses to Trichur, were supplied for the first time during the present year.

ANTI BLACK QUARTER SERUM:- 30,000 doses of Anti Black quarter serum were supplied to the Civil Veterinary Department, as against 6,087 doses supplied last year. 11,500 doses of the serum were supplies for the first time to Hyderabad during the year.

BLACK QUARTER VACCINE:- Several improvements have been made to increase the immunising power of this product with comparatively very satisfactory results.

1,40,167 doses of vaccine were supplied to the Civil Veterinary Department as against 62,770 doses during last year. 4,000 doses of vaccine were supplied to Hyderabad for the first time during the year.

BLACK QUARTER BACTERIN:- The preparati of this new product was taken on hand as it is believed to have a higher immunising value and a few tests were also conducted with encouraging results. Further tests to confirm its efficacy will be undertaken during the next year.

ANTHRAX SERUM:- With the facilities available in the new buildings it was possible this year to start preparation of Anti-Anthrax Serum in this Institute. 18,730 doses were produced and 1,000 doses were supplied to Hyderabad and 1,000 doses to Civil Veterinary Department.

SHEEP POX VACCINE:- 89.8 cc of concentrated vaccine were prepared and 55.05 cc were used to meet the demands of the Civil Veterinary Department as against 76.75 cc used during last year.

FIELD EXPERIMENTS:- 213 head of Amritmahal cattle were tested with goat virus during February 1933 near Arsikere as already detailed under "Rinderpest Goat virus". The above tests indicate that goat virus can be safely substituted with advantage for the present serum-virus simultaneous inoculation and hyperimmunisation. Seven more animals were inoculated against Black Quarter by the Sero-filtrate method on the Hotbal Agricultural Farm.

During June 1933 38 animals of the Dairy Farm of the Mysore Imperial Service Lancers were immunised against Blackquarter by

BLACK QUARTER BACTERIN:- The preparation of this new product was taken on hand as it is believed to have a higher immunising value and a few tests were also conducted with encouraging results. Further tests to confirm ~~the~~ its efficacy will be undertaken during the next year.

ANTHRAX SERUM:- With the facilities available in the new buildings it was possible this year to start preparation of Anti-Anthrax Serum in this Institute. 18,730 doses were produced and 1,000 doses were supplied to Hyderabad and 1,000 doses to Civil Veterinary Department.

SHEEP POX VACCINE:- 59.8 cc of concentrated vaccine were prepared and 55.05 cc were used to meet the demands of the Civil Veterinary Department as against 76.75 cc used during last year.

FIELD EXPERIMENTS:- 213 head of Amritmahal cattle were tested with goat virus during February 1933 near Arsikere as already detailed under "Rinderpest Goat virus". The above tests indicate that goat virus can be safely substituted with advantage for the present serum-virus simultaneous inoculation and hyperimmunisation. Seven more animals were inoculated against Black Quarter by the Sero-filtrate method on the Hebbal Agricultural Farm.

During June 1933 36 animals of the Dairy Farm of the Mysore Imperial Service Lancers were immunised against Blackquarter by

cero-filtrate simultaneous inoculation followed 9 days later by a reinforcing dose of Blackquarter filtrate alone.

ROUTINE BACTERIOLOGY AND PATHOLOGY:-

1,007 samples of virus were examined for contamination and 1,093 cultures were examined for aerobic and anaerobic organisms 3,229 smears were examined for protozoa and other bacterial contaminations and 1,208 post mortem examinations were conducted during the year.

REVENUE AND EXPENDITURE:- Out of Rs.1,03,700 sanctioned by Government for expenditure during 1932-33 only Rs.92,173/- was actually spent for the Institute showing thereby a saving of Rs.11,527/- in the budget grant. The cost of all products supplied to places outside the State and to the Civil Veterinary Department at the approved prevailing rates together with the amounts realised by the sale of 'done' animals, carcasses, manure etc. and the cost of the stock of all products & animals remaining at the beginning of the current year amount to Rs.2,13,357 against an expenditure of only Rs.92,173/- during the year under report as compared with Rs.2,04,000 and Rs.1,04,960/- respectively during the previous year.

The total sales of the products to places outside the State and of done animals and carcasses within the State amount to Rs 63,383-11-0 during the year as against

Rs.60,038-8-0 last year.

Thus the work of the Institute from the financial aspect is on the whole more satisfactory than even last year.

A reduction in the rates of all products was declared this year to keep on a par with those prevailing in the Imperial Institute of Veterinar Research, Muktesar.

GENERAL:- The Institute has become a place of scientific as well as general interest and was visited during the year by a large number of distinguished visitors.

The biological products prepared in the Institute were exhibited during the last Dasara Exhibition in Mysore and a gold medal certificate was awarded for the products of the Institute.

Superintendent,
Serum Institute.

ANNUAL REPORT ON THE WORKING OF THE MUKTESAR SERUM INSTITUTE, MUKTESAR, FOR THE YEAR 1932-33.

-oOo-

PART II.

ARTIFICIAL LIGHT:- An important feature of the year under report is that the Serum Institute which was started in the year 1927, on an experimental and temporary basis has been made permanent with effect from 1-4-1933 in consideration of the steady progress shown and the considerable revenue realised by the Institute during all these years, and it is indeed highly gratifying to note that the importance and usefulness of the Institute have thus been recognised.

Government were also pleased to sanction in their order No. 5332-3/C.V.60-32-S dated 27-4-1933 the reorganisation of the Institute with effect from 1-4-1933 and to appoint me as "Superintendent" on a revised grade of pay changing the original designation of "Officer in charge". The post of Assistant Superintendent which has been kept vacant till 1-4-1933 was omitted and the place of the Bacteriological Assistant was continued.

Although the Institute was started primarily for the purpose of preparing only Anti-Rinderpest Serum and Rinderpest Virus, required by the Punjab Civil Veterinary Department for their extensive campaign of s.s. inocu-

against Rinderpest, yet, not only were these materials produced on a sufficiently large scale to meet adequately the demands for them from within as well as from outside the State, but year after year, several other kinds of sera and vaccines against other cattle diseases, only next in importance to Rinderpest, such as Haemorrhagic Septicaemia, Blackquarter, Anthrax etc., were added to the list of products made available for supply from the Institute.

These products have attracted large and repeated indents even from other Indian States and have thus become a source of increasing revenue to the State.

The main item of work done in the Institute during the year 1932-33 is as usual the preparation of several kinds of sera and vaccines on a large scale, so as to meet fully and promptly not only the requirements of the Mysore Civil Veterinary Department but also the demands for them from several other Indian States such as Hyderabad, Baroda, Cochin, Coorg, etc. Whereas in the previous years indents for only Rinderpest Virus and Anti-Rinderpest Serum were received from outside the State, during the year under report requisitions for Haemorrhagic Septicaemia Vaccine and Anti-Haemorrhagic-Septicaemia Serum, Blackquarter filtrate and Anti-Blackquarter Serum and Anti-Anthrax Serum have also been received besides indents for much larger quantities of the former.

The preparation of new products such as Rinderpest Goat Virus, Blackquarter filtrate and Serum, Haemorrhagic Septicaemia Serum and Vaccine, Sheep pox Vaccine, and Anti-Anthrax Serum etc., was undertaken on a much larger scale after the Institute was moved into its present new buildings at Hebbal in March 1932.

A noticeable feature in the work of the Institute during the year under report is that preparation of two fresh products viz., Anti-Anthrax Serum and Blackquarter Bacterin was undertaken. The preparation of the former is so satisfactory and successful that regular supply of this product on indents, is being made to the Mysore Civil Veterinary Department as well as to places outside the State and the latter product is under test.

Further tests with the 'fixed' rinderpest goat virus, as an immunising agent for rinderpest among cattle, were also conducted during this year on a more systematic and larger scale with efficacious and satisfactory results which are detailed in a subsequent paragraph. These tests confirm our view that the goat virus inoculation as a single vaccine for plains cattle as inot rinderpest may be adopted with advantage in place of the present serum simultaneous method of inoculation and subsequent test inoculation which are comparatively tedious and costly.

More intensive research in the laboratory to perfect these new products and larger field tests to confirm their safety and efficacy were also undertaken during the year both in the villages and on Government Amritmahal cattle. These will be dealt with under appropriate heading in subsequent paragraphs.

During the year under report an important change in the procedure of supplying sera and vaccines to the Veterinary Inspectors in the State was adopted so as to suit the convenience of the Veterinary Department. Prior to 1-7-1932 the products were being supplied to the Superintendent, Civil Veterinary Department who would despatch them to the Veterinary Inspectors, according to their requirements. But as this arrangement involved trouble and duplication of work in the office of the Superintendent, Civil Veterinary Department, besides causing delay in despatching consignments, the Institute undertook at first, as a tentative measure, with effect from 1-7-1932, the responsibility of despatching the products direct to the Veterinary Inspectors, immediately on receipt of indents from them and also of receiving the empties returned by them.

This arrangement is being however continued as it is found advantageous and as it ensures timely supplies to the Veterinary Inspectors, although it has thrown a considerable amount of additional work on the already

heavily worked staff of the Institute.

II. ADMINISTRATION:- I was in charge of the Institute throughout the year under report.

Mr. T.U.Nayar continued to be the Bacteriological Assistant. He was on privilege leave for two months and 15 days from 10-9-1932 during which period Mr. K.R.Srinivasa Iyengar, Seniormost Veterinary Inspector, was appointed as acting Assistant Superintendent, as per Government Notification No. D.1679. C.V.32-25 dated 2-11-1932.

Mr. K.Ranganatha Rao, Assistant Superintendent, Research section of the Civil Veterinary Department, continued his research work on Johne's disease etc. in the Institute during the year.

III. STAFF. The staff of the Institute consists of six Veterinary Inspectors, and eleven Salutries in the Veterinary Section; seven clerks in the office section; two Laboratory Assistants, one mechanic, one Media man, and one Serum room Attendant, one carpenter and one packer among the technical staff and a menial section made up of one Naistry, 63 cattlemen, six theties, five peons and two watchmen.

The above includes the additional staff sanctioned in Government Order No.D.810-11/C.V. 84-30-5 dated 24-7-1931 which was fully given effect to during the year under review.

BUILDINGS:- The existing cattle-sheds having only thatched roofings, are liable to too frequent disrepair especially as the buildings are frequently exposed to heavy winds from all sides. It will save much inconvenience and recurring expenses if permanent roofing of the sheds is sanctioned as suggested in last year's report.

The Reserve depot, where newly purchased animals are kept under observation prior to their use in the Institute, continued to be located till 21-7-1932 in a rented Chatram near Sampango tank. Thereafter it was shifted to the Old Rifle Range Buildings, a mile to the south of the Institute so as to have the animals within easy reach of the Institute. But as these buildings are in a very dilapidated condition and not suited for housing cattle, Government ~~were~~ have been pleased to sanction the construction of a suitable cattle shed for accommodating the reserve supply of animals at an estimated cost of Rs.6,000/- and it is expected that the work will be taken up early.

There are at present no quarters attached to the Institute either for the Officers or for the staff. Construction of quarters at least for the Superintendent, and for a Veterinary Inspector on duty, has been proposed and recommended ~~for~~ by the Director, to ensure better supervision and management, to enable closer and more frequent observation of experimental cases and animals under test;

and to facilitate continuous laboratory and Research work. Moreover, as the Institute is situated about 5 miles away from the City, necessity for the quarters is felt all the more keenly and this want was also menti ned in last year's report. It is therefore trusted that this matter will receive the urgent and favourable consideration of the Government.

The incinerator wh ch was under construction last year is being used since March 1933. Certain improvements and alterations, however, are still found necessary to make it efficient and it is expected that they will be attended to early.

A small building for locating a De Laitte gas plant was also built during the year and the work of laying gas pipes is under progress.

During the year avenue trees and shade trees consisting mostly of Eucalyptus, Peltiform, Cassia Javanica, Gold mohurs etc. were planted along the roads and a small ornamental garden was laid in front of the Institute with a fountain in the centre.

A portion of the grounds belonging to the Institute was brought under cultivation and maize was sown. The cultivation area supplied about 32 tons of green maize which was used as fodder for the animals during the year.

LIBRARY AND READING ROOM:- A library and reading room was started in the middle of September 1932, and it has now got 32 volumes on different scientific subjects. 10 journals were subscribed for during the year in addition to six journals received from the Civil Veterinary Department, and four from the Office of the Director of Agriculture. A few bulletins and reports were also exchanged during the year.

ANIMALS USED:- During the year 516 buffaloes, 1,335 buffalo bull calves, 341 goats, 33 sheep, 22 rabbits and 69 guinea pigs were admitted for use for the production of the various sera and vaccines and Rinderpest virus, and for the purposes of tests.

BOVINE RINDERPEST VIRUS:- During the year there was a drop in the demand for Rinderpest virus and Anti-Rinderpest serum compared to that of previous year due to a further decline in the incidence of the disease in the State, although there was a considerably larger demand for the other products.

1,139 animals were used for virus production as against 1,639 animals last year and against 2,440 animals in the year before last and this decrease may be attributed to the further decline in the number of outbreaks of rinderpest in the State. And again only 147 calves were rejected during the year as non-reactors, i.e., as not showing the clinical signs of the disease in time as against 230 rejected last year for

the same season. 5,20,775 cc's of rinderpest virus were produced during the year as against 7,20,400 cc's produced last year. Although the supply of virus to the Civil Veterinary Department in Mysore during the year, as compared with that of last year has fallen from 5,05,650 cc to 2,01,050 cc on account of the less number of outbreaks of the disease in the State, the supply of the same to the Coorg province during the year was over 4 times what it was in the previous year. 7,300 cc's of the virus were supplied during the year to Coorg as against 1,800 cc's sent last year.

RINDERPEST GOAT VIRUS:- In addition to the large amount of work on Goat virus done so far, in this Institute and by the Civil Veterinary Department in the previous years, further work on the use of Goat virus as a single vaccine for immunising cattle against Rinderpest was continued during the year. Finding that the virus obtained by more passaging of virulent bovine virus through goats was at any stage either unsafe or unreliable as regards its reaction on cattle, attempts were made to cultivate it in the body fluids, but this also was found unsatisfactory. Attempts to fix the virus in the uterine fluid of a pregnant goat were undertaken and although there were a few failures in the beginning, we have been successful in evolving a strain of virus that has undergone 20 passages through goats during the year, without getting unduly exalted or attenuated. Periodical tests by

inoculation into bovines have demonstrated that the fixed virus can be relied upon to set up only a definite and decided reaction in plains cattle.

With a view to arrive at more definite conclusions regarding the effect of fixed Rinderpest goat virus on cattle and the solidity of immunity conferred, it was decided at the instance of the Director of Agriculture to conduct a thorough and systematic test on Government Amritsahal cattle which had never been previously protected against Rinderpest. The Live Stock Expert was kind enough to place herd No.3 of the Amritsahal Department which consisted of about 230 animals at our disposal for the purpose.

213 animals of different ages belonging to this herd were inoculated with goat virus during February 1933. The temperature of 155 animals was regularly noted and recorded for 10 days after inoculation. Over 93% of these showed a more or less febrile reaction only which soon subsided. Another interesting fact that was revealed in the course of observations was that the higher thermal reaction was recorded more among animals under 2 years of age. After 3 weeks in March 1933 an immunity test was held on 48 of the goat virus protected animals of different ages by inoculating them with bovine virus and their temperature recorded for ten days. None among the 48 showed any response to the bovine virus,

A second test with locally drawn bovine virus was done on another 18 goat virus protected animals of different ages of the same herd on 2nd April 1933 after an interval of over 45 days, but not the least untoward effect was noticed in any of them.

The results of these tests indicate that goat virus can be safely used on plains cattle and that it confers an immunity, solid enough to withstand an infection with a fairly good dose of bovine virus.

In order to ascertain the duration of the immunity resulting from Goat Virus inoculation it is proposed to take up some of the other Goat virus protected animals of this herd after tests with bovine virus at different intervals.

24 calves were used for a test for determining the period of viability of goat virus preserved at 0°C. The results obtained furnish evidence to show that the virus can remain quite active upto 12 days at least from the date of production if kept in cold storage. Further tests to confirm this and also to ascertain the duration of life of the virus at room temperature will be taken up during the next year.

ANTI-HAEMORRHAGIC SERUM:- There were 118 unused serum producers on hand on the 1st July 1932. During the year under review 405 animals were purchased making up a total of 520 animals, of which 516 were used for t e

production of Anti-Rinderpest Serum as against 400 in the previous year. During the course of the year 40 of these were again used for preparing Anti-Blackquarter Serum, 80 for Anti-Haemorrhagic Septicaemia Serum, and 36 for Anti-Anthrax Serum. There were 54 deaths among the producers of these several sera during the year as against 70 in the previous year.

5,04,825 doses of Rinderpest Serum were produced during the year as against 4,71,759 doses in the year 1931-32.

There were 1, 4,400 doses of serum remaining at the commencement of the year. 5,04,825 doses of the serum were produced within these 12 months. Of the total quantity of 6,18,825 doses available for supply, 2,46,550 doses were supplied to the Civil Veterinary Department and 2,89,800 ~~were~~ doses were sold to places outside the State, such as Hyderabad, Baroda and Coorg, as against 3,10,000 doses and 2,82,550 doses issued respectively during the previous year. 8,225 doses were made use of in the Institute.

During the year the improvements effects in the preservation and storage of biological products in the efficient refrigerator provided, have enabled us to hold larger stocks of serum for prompt supplies, besides reducing our losses due to contamination during storage, compared to the previous year and the per cent of the quantity discarded has been almost negligible being about .2%. It is contemplated to

take up different kinds of preservatives for sera during the coming years.

The balance of Anti-Rinderpest Serum on hand at the end of the year was 2,02,000 doses.

Investigation as to the possibilities of producing a potent immune serum by injecting buffaloes with a single dose of goat virus alone, was undertaken on 13 buffaloes and a brew of serum has been produced. It is proposed to undertake animal tests with this serum during the next year.

HAEMORRHAGIC SEPTICAEMIA VACCINE. 40,330 doses of the product were issued to the Civil Veterinary Department as against 21,500 doses last year. For the first time indents for 1,800 doses from Hyderabad and 1,830 doses from Baroda were received for this product during the year and complied with.

During the year three different strains of Pasteurella bovisepticus were maintained in the laboratory and a vaccine incorporating these strains was manufactured to make it polyvalent. Meat Digest broth adjusted to pH 6.8 was the media employed and found suitable.

ANTI-HAEMORRHAGIC SEPTICAEMIA SERUM:- Out of the animals used for the production of Anti-Rinderpest Serum, 80 were later on immunised and used for producing H.S. Serum.

33,603 doses of this serum were produced and 25,052 2/3 doses were issued to the Civil Veterinary Department as against 5,083 doses produced, and 5,500 doses supplied to the Department in the previous year. 17,000 doses of the serum to Hyderabad and 300 doses to Trichur, were supplied for the first time during the year.

ANTI-HAEMORRHAGIC SERUM:- Out of the animals used for the production of Anti-Rinderpest Serum 40 were later on immunised and used for producing B.Q. Serum.

35,006 doses were issued to the Civil Veterinary Department as against 6,037 doses supplied last year. For the first time 11,500 doses of this serum were supplied to Hyderabad during the year.

BLACKQUARTER FILTRATE:- After experimental investigations several modifications and improvements in the method of preparation of Blackquarter filtrate as for example inclusion of additional strains, more favourable pH adjustment, better anaerobic conditions, further enrichment of media, minimising exposure during preparations etc were effected with the result that a comparatively far more potent filtrate was produced. The results of the use of this improved product in the field were also very satisfactory.

During the year simultaneous use of

Black quarter serum and filtrate followed by a reinforcing dose of Black quarter filtrate alone on the 9th day was advised for employment in enzootic areas, especially, and in the scene of outbreaks. Field tests carried out on Government animals in the Hebbal Dairy, Imperial Lancers Dairy, and Government cattle breeding station at Ajjampur, have confirmed our view with regard to the efficacy of the double method recommended.

1,60,187 doses were supplied to the Civil Veterinary Department during the year under report as against 62,770 doses supplied last year. 4,000 doses of the filtrate were supplied to Hyderabad for the first time during the year.

BLACK QUARTER BACTERIN:- The preparation of this new product was taken on hand as it is believed to have a higher immunising value being a formalised whole killed culture of the organisms; and a few tests were also conducted with encouraging results. Further tests to confirm its efficacy will be undertaken during the next year.

ANTI-ANTHRAX SERUM:- With the facilities available in the new buildings it was possible this year to start preparation of Anti Anthrax Serum in the Institute. 18,730 doses were produced and 1,000 doses were supplied to Hyderabad and 400 doses to the Mysore Civil Veterinary Department.

38 animals that were ~~discontinued~~ used for Rinderpest serum production were later on immunised and used for producing Anthrax serum.

SHEEP-POX VACCINE:- 59.8 c.c's of con-

concentrated vaccine were prepared and 85.05 cc's were supplied to the Civil Veterinary Department as against 76.75 cc's issued during last year.

The statistical statements of all products giving full details as to the quantity produced, supplied and balance remaining for the year 1932-33 together with the details as to the sales effected and expenditure incurred are appended to this report.

FIELD EXPERIMENTS:- 213 heads of Amritmahal cattle were tested with goat virus during January 1933 near Arsikere as already detailed under "Rinderpest Goat Virus"

7 more animals were inoculated against Black Qua by the sero-filtrate method on the Hebbal Agricultural Farm.

During June 1933, 38 animals of the Dairy farm of the Mysore Imperial Bovvine Lancers were immunised against Blackquarter by sero-filtrate simultaneous inoculation followed 9 days later by a reinforcing dose of Blackquarter filtrate alone.

BOVINE BACTERIOLOGY AND PATHOLOGY:- During the year a large amount of routine work was carried out in the laboratory in connection with the testing and standardisation of products issued by the Institute and in the examination of smears received for opinion.

The following are the details of the smears examined:-

Anthrax	109
Blackquarter ...	117
Haemorrhagic Septicaemia	207
Johne's	14
Piroplasma	916
Miscellaneous ...	1866
Total	3229

In addition cultural examination of 1,007 samples of Rinderpest virus and 86 samples of sera and vaccines were made. Estimation of pH values of 55 samples of media and six samples of sera were also done.

Routine pathology consisted of systematic post mortem examination of all virus producers and experimental animals maintained at the Institute and the following table gives the details of such examinations:-

Kind of animal	Confirmed					
	Rinderpest.	Haemorrhagic Septicaemia.	Blackquarter	Anthrax	Others	Total
Buffaloes	35	7	8	3	[illegible]	53
Buffalo calves	899	8	25	4	1	934
Goats	109	-	-	6	1	116
Sheep	5	-	2	13	1	21
Rabbits	-	13	-	3	2	18
Guinea pigs	-	-	52	13	1	66

During the course of the postmortem examination sixtyfive samples of helminths were collected and these will be classified.

REVENUE AND EXPENDITURE:- The total sales of the products, only to places outside the State, and of "Dong" animals, manure etc., within the State, amounted to Rs. 68,383-11-0 during the year under report as against Rs. 69,033-8-0, last year.

Out of Rs. 1,03,700/- sanctioned by ~~the~~ Government for expenditure during 1932-33 only Rs. 92,173/- was spent saving Rs. 11,527/- in the budget grant.

The cost of products supplied to places outside the State and to the Civil Veterinary Department at the approved rates together with the amount realised by the sale of dung animals, manure, etc, and the cost of the stock of all products and animals remaining at the beginning of the current year, amount to Rs. 2,13,350/- against an expenditure of only Rs. 92,173/- during the year under report as compared with Rs. 2,04,000/- and Rs. 1,04,240/- respectively, during the previous year and thus it is seen that the Institute was working at a considerable profit and its financial position is also ~~an improvement over~~ more satisfactory than on the whole last year's.

The following are the details as to the cost of serum and vaccines supplied to the Mysore Civil Veterinary Department, during the year:-

Name of the product.	Quantity supplied during 1933-33	Cost of the product at the approved rate.
1	2	3
Anti Rinderpest Serum	2,44,650 doses	Rs. 36,912- 8-0
Rinderpest Virus	2,87,[illegible] cms.	13,721-14-0
Anti Haemorrhagic Septicaemia Serum	33,050 2/3 doses	8,328-14-8
Anti Black-quarter serum	30,000	10,750- 8-0
Anthrax Serum	100 doses	25- 0-0
Haemorrhagic Septicaemia Vaccine	44,332 "	3,326- 2-0
Black Quarter Vaccine.	1,30,167 "	33,667- 1-0
Sheep-pox Vaccine	55 cc. (Unvalued)	20-10-0
		1,14,822- 9-8

Consequent on the reduction in the prices of sera and vaccines produced in the Imperial Institute of Veterinary Research, Muktesar from 1-4-1933 Government have sanctioned in their Order No.D.6256-7/C.V.74-32-2 dated 21-4-1933 certain revised rates of production of these products also in order to keep in line with the reduced rates at Muktesar so that indents for products from outside the

(please turn over)

State may be continued to be placed with this Institute. Although this may affect the revenue of the Institute to some extent it is hoped that such larger indents will be received on account of the reduced rates of the products.

GENERAL:- The biological products prepared in the Institute and the photographs of the new Institute buildings were arranged to be exhibited during the last Dasara Exhibition held at Mysore in September 1932, and a gold medal certificate was awarded for the products of the Institute. These products were also arranged to be exhibited at the Health Exhibition held at Anekal in March 1933.

A lecture on "Some problems in infection and immunity" was delivered by me on 10-6-1933 in the Indian Institute of Science.

At the 8th annual conference of the Mysore Veterinary Medical Association held in the month of June 1933, a paper on "Principles and problems of Immunology" was read by me and another on "The recent field experiments with Goat Virus alone in Amrit Mahal Cattle at Arsikere" by Mr. P.U. Nayar, Bacteriological Assistant, and the third on "The Preparation and standardisation of Black-quarter filtrate" by Mr.V.J. Kuppusamy Mudaliar, Veterinary Inspector, of the Institute.

Mr. G.N. Srikantiah, Veterinary inspector attached to the Institute, underwent a post graduate course during the year in the Imperial Institute of Veterinary Research,

Muktesar, and one Mr. M.T. Aung, a Burmese student of the Bengal Veterinary College, underwent training in this Institute from 1-4-1933 to 26-6-1933.

The Institute has become a place of Scientific as well as of General interest and was visited during the year by a large number of distinguished visitors, viz. Col. Olver, Veterinary Advisor to the Government of India; Veterinary Officer from Jaipur; Nawab of Janjira; Major Harris; Staff & Students of the Bio-Chemical Section of the Indian Institute of Science; Students and those undergoing training in the Imperial Dairy Farm; members of the Agricultural Union; Rao Bahadur S.C. Rangiengar; Students of the Central College, Scout Rovers; Professors and students of the Coimbatore Agricultural College Mr. Somanna, Veterinary Officer from Coorg; Director of Land Mortgage Bank, Bangalore, and some members of the Legislative Council and the Representative Assembly.

Before concluding the report I wish to thank all those that co-operated in the work of the Institute during the year. I am highly obliged to the Live Stock Expert in Mysore, who provided us with all the facilities to conduct goat virus experiments on Amrit Mahal cattle at Arsikere. I am grateful to the Superintendent, Civil Veterinary Department, for his ever-ready and cordial co-operation on all occasion. Many thanks are also due to the Agricultural Engineer and the Assistant Agricultural Engineer, who have been taking personal interest, regarding the Institute buildings and machines, and my thanks are due to no less extent to the Senior Artist of the

Agricultural Department for his ready co-operation in taking photographs of the scientific operations in the Institute. I feel I will be failing in my duty if I do not make a special mention of Mr. K. Ranganatha Rau, Assistant Superintendent, Scientific Section, Civil Veterinary Department, for his valuable assistance and his efforts in the fixing of goat virus in this Institute. I take this opportunity to express my gratitude to Mr. L.P. Nanjarenhan, Technical Assistant to the Chief Conservator of Forests, and to Mr. B.C. Venkata Rau, B.A., Assistant Conservator of Forests, for having supplied us many valuable plants of different selected varieties to be planted on the Institute grounds. I am also greatly obliged to Mr. V.C. Badami, Economic Botanist in Mysore, for his valuable advice and supervision in laying the garden and planting shade trees on the Institute grounds. My thanks are also due to the several Veterinary Inspectors for having assisted the Institute in the collection of material for Black-quarter and thus cooperated with the Institute.

In concluding the report, I wish to record my great appreciation of the good work done during the year by Mr. P.U. Nayar, Bacteriological Assistant and by the rest of the Institute, Executive as well as Ministerial, with great willingness and enthusiasm although they had to work over time very often to cope with the increasing work in the Institute.

Superintendent,
Coorg Institute.

A.R. 10/10/33

Statement showing the quantity of Haemorrhagic Septicaemia Vaccine, prepared, issued, and balance remaining monthly, for the year 1932-33

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Month.	Balance at the beginning of the month.	Quantity produced during the month.	Quantity returned from the Civil Veterinary Department.	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage etc.,	Total	Stock of Serum on the last day of the month.
					Civil Veterinary Department.	Outside the State.			
1	2	3	4	5	6	7	8	9	10
	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses.
July 1932	5,290	5,300	3,010	13,600	5,220	50	-	5,270	10,330
August "	10,330	-	160	10,490	6,420	140	100	7,060	2,930
September "	2,930	1,700	240	4,870	4,370	500	-	4,870	-
October "	-	5,330	2,400	7,730	1,490	-	-	1,490	6,240
November "	6,240	800	120	7,160	4,040	-	-	4,040	3,120
December "	3,120	-	1,450	4,570	2,490	-	-	2,490	2,080
January 1933	2,080	2,200	1,750	6,030	1,760	-	-	1,760	4,270
February "	4,270	-	1,430	5,700	350	-	-	350	5,350
March "	5,350	-	710	6,060	2,450	-	-	2,450	3,610
April "	3,610	-	1,550	5,160	800	-	-	800	4,360
May "	4,360	-	1,710	6,070	3,690	-	-	3,690	2,380
June "	2,380	8,800	100	11,280	7,250	1,500	30	8,780	2,500 (Secundra.)
TOTAL	5,290	24,130	16,630	46,050	40,330	3,000	130	43,550	

Hebbal, Bangalore.
20th Septr. '33 } A.H.

Superintendent,
Serum Institute.

Statement showing the quantity of Black Quarter Filtrate, prepared, issued and balance remaining monthly for the year 1932-33.

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Month.	Balance at the beginning of the month.	Quantity produced during the month.	Quantity returned from the Civil Veterinary Department.	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage	Total	Stock of Serum on the last day of the month.
					Civil Veterinary Department.	Outside the State.			
1	2	3	4	5	6	7	8	9	10
	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses.
July 1932	3,850	19,000	450	23,900	17,750	-	-	17,750	6,150
August "	6,150	1,585	50	7,785	6,850	-	525	6,875	910
September "	910	22,647	150	23,607	23,107	500	-	23,607	-
October "	-	5,625	1,700	7,325	6,775	500	-	7,275	50
November "	50	24,425	2,630	27,105	19,050	500	50	19,600	7,505
December "	7,505	4,300	1,350	13,155	8,555	-	-	8,555	4,600
January 1933	4,600	1,900	950	7,450	3,350	-	-	3,350	4,100
February "	4,100	9,500	4,250	17,850	3,800	-	100	3,900	13,950
March "	13,950	-	3,400	17,350	7,100	-	-	7,100	10,250
April "	10,250	3,000	1,450	15,000	6,550	-	-	6,550	8,950
May "	8,950	8,950	2,950	18,850	18,350	-	-	18,350	500
June "	500	19,000	650	20,150	17,250	2,500	-	19,750	400 (See above)
TOTAL.	3,850	1,21,232	19,950	1,45,082	1,40,187	4,000	475	1,44,662	

Hebbal, Bangalore.
20th Septr. '33.

A.N.

Superintendent,
Serum Institute.

Table showing the details of smears examined at the Mysore Serum Institute, Hebbal, Bangalore, during the year 1932-33.

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Disease suspected.		Number of smears.		
		Positive	Doubtful	Negative
Anthrax		147	3	19
Black-quarter		87	12	18
Haemorrhagic Septicaemia		141	51	35
Johne's Disease		0	0	14
Piroplasmosis Bovine:-	P. Higeminum	0	0	6
"	T. Mutans	167	-	716
"	Canine - P gibsoni	1	-	6
"	Equine - B Equi	1	-	19
Miscellaneous (Putrefactive etc)		585	-	1221

A.H. 10/10-33

Superintendent,
Serum Institute.

List of products issued from the Mysore Serum Institute, Bangalore, and current prices as sanctioned by the Government of Mysore.

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Serial number.	Name of product.	Rates.* Rs.	as.	ps.	Remarks.
1.	Anti Rinderpest Serum, Quality I	-	2	-	per dose of 5 cc.
2.	Anti Rinderpest Serum, Quality II	-	1	6	"
3.	Anti Haemorrhagic Septicaemia Serum	-	4	-	per dose of 15 cc.
4.	Anti Black-quarter Serum	-	4	-	"
5.	Anti Anthrax Serum	-	4	-	"
6.	Haemorrhagic Septicaemia Vaccine	-	2	-	per dose of 5 cc.
7.	Black-quarter Filtrate	-	3	6	"
8.	Black-quarter Bacterin	-	3	6	"
9.	Rinderpest Virus (supplied in 1 oz. & 2 oz. bottles)	-	1	-	per dose of 1 cc.
10.	Sheep-pox Vaccine (supplied in ampoules)	-	6	-	per 100 doses.
11.	Rinderpest Goat Virus (supplied in 1 oz & 2 oz bottles)	3	8	-	for 15 cc.

* These rates are at the Institute premises and are inclusive of the cost of packing cases, bottles &c.

N. 10/10/33

Superintendent,
Serum Institute.

Statement showing the quantity of Anti-Rinderpest Serum produced, supplied, and balance remaining monthly, for the year 1932-33.

Month.	Balance at the beginning of the month.	Quantity produced during the month.	Quantity returned from the Civil Veterinary Department.	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage	Total	Stock of Serum on the last day of the month.
					Civil Veterinary Department.	Outside the State.			
1	2	3	4	5	6	7	8	9	10
	doses	doses	doses	doses	doses	doses	doses	doses	doses.
July 1932	1,14,400	-	25,000	1,39,400	23,000	30,500	1,100	54,600	84,800
August "	84,800	1,52,200	300	2,37,300	20,000	33,000	200	53,200	1,84,100
September"	1,84,100	16,200	6,000	2,06,300	12,000	13,000	-	25,000	1,81,300
October "	1,81,300	-	11,050	1,92,350	8,000	33,000	1,300	42,300	1,50,050
November "	1,50,050	-	6,750	1,56,800	19,500	31,000	600	51,100	1,05,700
December "	1,05,700	1,41,025	13,000	2,59,725	5,000	35,000	325	40,325	2,19,400
January 1933	2,19,400	-	4,550	2,23,950	13,000	30,000	600	43,600	1,80,350
February "	1,80,350	-	-	1,80,350	29,000	17,000	4,100	50,100	1,30,250
March "	1,30,250	-	8,750	1,39,000	4,000	16,000	650	20,650	1,18,350
April "	1,18,350	1,95,100	3,000	3,16,450	34,050	6,000	-	40,050	2,76,400
May "	2,76,400	-	8,150	2,84,550	57,000	15,000	50	72,050	2,12,500
June "	2,12,500	-	10,150	2,22,650	20,000	-	650	20,650	2,02,000
TOTAL.	1,14,400	5,04,525	96,700	7,15,625	2,44,550	2,59,500	9,575	5,13,625	(See adde.)

Seal, Bangalore.
th Septr. 1933

Superintendent,
Serum Institute.

Statement showing the quantity of Anti Black Quarter Serum, produced, issued, and balance remaining monthly for the year 1932-33

Month.	Balance at the beginning of the month.	Quantity produced during the month.	Quantity returned from the Civil Veterinary Department.	Quantity supplied to			Quantity of Serum used in the Institute including wastage.	Total	Stock of Serum on the last day of the month.
				Total	Civil Veterinary Department.	Outside the State.			
1	2	3	4	5	6	7	8	9	10
	Doses.	doses	doses	doses	doses	doses	doses	doses	doses
July 1932	596	-	1,000	1,596	916 2/3	-	-	916 2/3	679 1/3
August "	679 1/3	-	-	679 1/3	166 2/3	-	-	166 2/3	512 2/3
September "	512 2/3	-	350	862 2/3	846	-	-	846	16 2/3
October "	16 2/3	19,380	-	19,396 3/2	1,076 2/3	1,000	-	2,076 2/3	17,320
November "	17,320	25,150	216 2/3	42,686 2/3	946 2/3	1,000	-	1,946 2/3	40,740
December "	40,740	-	718 2/3	41,458 2/3	2,720	1,000	-	3,720	37,738 2/3
January 1933	37,738 2/3	-	340	38,078 2/3	3,100	-	-	3,100	34,978 2/3
February "	34,978 2/3	-	2,223 1/3	37,202	2,850	-	-	2,850	34,352
March "	34,352	-	1,900	36,252	3,433 1/3	-	-	3,433 1/3	32,818 2/3
April "	32,818 2/3	-	750	33,568 2/3	2,650	-	-	2,650	30,918 2/3
May "	30,918 2/3	-	663 1/3	31,582	9,913 1/3	1,000	-	10,913 1/3	20,668 2/3
June "	20,668 2/3	-	656 2/3	21,325 1/3	6,386 2/3	7,500	20	13,906 2/3	7,418 2/3 (Sec.a dose.)
TOTAL	596	44,530	8,818 2/3	53,944 2/3	35,006	11,500	20	46,526	

Hebbal, Bangalore.
18th Septr. '33

A.N.

Superintendent,
Anti Serum Institute

STATEMENT SHOWING THE PRODUCTS SUPPLIED TO THE DIFFERENT PROVINCES, STATES, ETC., DURING THE YEAR 1932 - 33

Products.	Mysore	Hyderabad	Coorg	Baroda	Cochin	Used in the Institute	Total	Remarks
Anti-Rinderpest Serum	2,44,550	2,30,000	29,000	600	-	*9,675	5,13,625	* Including 1,300 doses discarded and 1000 doses used for inoculating Amritmahal cattle by the Institute Veterinary Inspectors.
Anti-Haemorrhagic Septicaemia Serum.	25,052 2/3	17,000	-	-	300	*80. 2/3	43,162 1/3	*including 20 doses discarded.
Anti-Blackquarter Serum.	35,006	11,500	-	-	-	20	46,526	
Anti-Anthrax serum	100	1,000	-	-	-	120	1,228	
Haemorrhagic septicaemia vaccine.	40,330	1,500		1,590	-	130	43,550	
Blackquarter filtrate	1,40,187	4,000	-	-	-	*475	1,44,662	* including 320 doses used at Hebbal by the Institute Veterinary Inspector.
Sheep pox Vaccine	55.05 c.c. Conc.	-	-	-	-	13.95 cc conc	69 c.c. Conc.	
Rinderpest virus	2,51,550 c.c.	-	7,300 cc.	-	-	*2,65,250 c.c. (Conc)	5,24,100 c.c. (Conc)	*including 2,39,675 cc discarded; including 1,050 c.c. used for inoculating Amritmahalcattle by the Institute Veterinary Inspectors

Archer

STATEMENT SHOWING THE FINANCIAL RESULTS OF THE WORKING OF THE KY. INSTITUTE DURING THE YEAR 1932-33

Receipts.			Expenditure					
Sale of sera, vaccine and other products including those supplied to the Civil Veterinary Department and the stock of products as on 30-6-1933.	Sale of carcasses of animals, carcasses etc.	Total	Purchase of animals	Feed charges	Apparatus chemicals and glassware.	Contingencies.	Salaries and travelling allowances of officers and staff.	Total
Rs. as. p.	Rs. as. p	Rs.	Rs. as. p		Rs. as.p	Rs. as p	Rs. as. p	Rs.
~~1,90,738-3-0~~ 2,08,724-3-0	4,632-13-0	~~1,95,371/-~~ 2,13,357/-	24,313-4-0	15/6	6716-15-6	9923-1-0	36,098-8-0	92,173/-

Superintendent,
Serum Institute

Statement showing the quantity of Sheep-pox Vaccine prepared, issued, and balance remaining monthly, for the year 1932-33.

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Month.		Balance at the beginning of the month.	Quantity produced during the month.	Quantity returned from the Civil Veterinary Department.	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage etc.	Total.	Stock of Serum on the last day of the month.
						Civil Veterinary Department.	Outside the State.			
1		2	3	4	5	6	7	8	9	10
July	1932	cc. 24,995 Concentrated	cc. -	cc. -	cc. 24,995 Concentrated	cc. 2.5 Conc.	cc. -	cc. .25 Conc.	cc. 2.75 Conc.	cc. 22.245 Concentrated.
August	"	22.245 Conc.	-	-	22.245 Conc.	.750 Conc.	-	-	.750 Conc.	21.495 Concentrated.
September	"	21,495 Conc.	-	-	21,495 Conc.	1.75 Conc.	-	-	1.75 Conc.	19.745 Concentrated.
October	"	19.745 Conc.	25.1	-	44,845 Conc.	-	-	.5 Conc.	.5 Conc.	44.345 Concentrated.
November	"	44,345 Conc.	-	-	44,345 Conc.	-	-	-	-	44.345 Concentrated.
December	"	44,345 Conc.	-	-	44,345 Conc.	7 Conc.	-	.5 Conc.	7.5 Conc.	36,845 Concentrated.
January	1933	36,845 Conc.	-	-	36,845 Conc.	13 Conc.	-	.5 Conc.	13.5 Conc.	23,345 Concentrated.
February	"	23,345 Conc.	-	-	23,345 Conc.	2.5 Conc.	-	.5 Conc.	3 Conc.	20.345 Concentrated.
March	"	20.345 Conc.	34.700 Conc.	-	55.045 Conc.	10 Conc.	-	10.5 Conc.	20.5 Conc.	34.545 Concentrated.
April	"	34.545 Conc.	-	-	34.545 Conc.	7.250 Conc.	-	.5 Conc.	7,750 Conc.	26,795 Concentrated.
May	"	26.795 Conc.	-	-	26.795 Conc.	7 Conc.		.5 Conc.	7.5 Conc.	19.295 Concentrated.
June	"	19.295 Conc.	-	-	19.295 Conc.	3.3 Conc.	-	.2 Conc.	3.5 Conc.	15.795 Concentrated.
TOTAL.		24.995 Concentrated.	59.8 Conc.	-	84.795 Conc.	55.050 Conc.	-	13.95 Conc.	69 Conc.	

Hebbal, Bangalore.
20th Septr. 1933.

A.H.

Superintendent,
Serum Institute.

Statement showing the quantity of Rinderpest Virus prepared, issued, and b[illegible] remaining monthly for the year 1932-33.

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43

Month.	Balance at the beginning of the month.	Quantity produced during the month.	Quantity returned from the Civil Veterinary Department.	Total.	Quantity supplied to			Total	Stock of Virus on the last day of the month
					Civil Veterinary Department.	Outside the State.	Quantity of Virus used in the Institute including wastage etc.		
1	2	3	4	5	6	7	8	9	10
	Ozs.	ozs.	Ozs.	Ozs.	Ozs.	Ozs.	Ozs.	Ozs.	Ozs.
July 1932	334	2,128	-	2,459	674	11	1,497	2,182	277
August "	277	1938	-	2,215	747	33	1,150	1,935	277
September "	277	1,487	-	1,764	530	19	1,035	1,584	180
October "	180	2,021	-	2,201	691	48	1,026	1,965	235
November "	236	1,392	-	1,628	495	62	915	1,472	156
December "	156	1,047	-	1,203	469	21	604	1,094	109
January 1933	109	1,499	-	1,608	544	19	915	1,478	130
February "	130	1,396	-	1,526	1065	24	265	1,354	172
March "	172	1,596	-	1,768	685	14	833	1,532	176
April "	176	1,441	-	1,617	766	18	687	1,471	146
May "	146	2,564	-	2,610	2,142	9	285	2,436	374
June "	374	2,225	-	2,599	1,654	14	1,330	2,398	201 ozs. 5025 cc.
Total	~~288~~ 334 ozs. or 8,350 c.c.	~~22,228~~ 20,831 ozs. or 5,20,775 c.c.	-		21,165 ozs. or 5,29,125 c.c.	10,0[illegible] or 2,51,[illegible]	202 ozs. or 7,300 c.c.	10,610 ozs. or 2,65250c.c.	20,964 ozs. or 5,24,100c.c.

Besides 302 ozs. of [illegible]ost virus were prepared during the Year 1932-1933.

Richer

PART I.

A Summary of the Annual Report of the Mysore Serum Institute, for the year 1932-33.

--oOo--

It is a matter for gratification that the Serum Institute which was started in 1927 on a temporary basis, was made permanent with effect from 1st April 1933, in consideration of its importance and usefulness to the State.

Government were also pleased to sanction during the year a reorganisation of the staff and a change in the designation of "the Officer in charge" as "Superintendent" on a revised grade of pay.

In addition to the manufacture of large quantities of Anti Rinderpest Serum and Rinderpest Virus, the preparation of new products such as Rinderpest Goat Virus, Black Quarter Filtrate and Serum, Haemorrhagic Septicaemia Serum and Vaccine, Sheep-pox Vaccine etc. was undertaken on a large scale after the Institute was moved into its new habitation at Hebbal, during March 1932.

Two fresh products,-viz. Anti Anthrax Serum and Black Quarter Bacterin were prepared during this year in the Institute. The former is already being supplied both within the State and to Stations outside. The latter is under test and so far the results are encouraging.

Direct supply of products from the Institute to the Veterinary Inspectors, on indent

was started, this year, instead of through the Superintendent, Civil Veterinary Department, as heretofore. This practice has enabled the Veterinary Inspectors to get their requirements more promptly although it has meant some addition to the heavy work in the Institute.

ADMINISTRATION:- Mr. S.D. Achar was in charge of the Institute and Mr. P.U. Nayar continued to be the Bacteriological Assistant, during the year. The latter was on privilege leave for 2½ months from 10-9-1932, when Mr. N. R. Srinivasa Iyengar, Senior-most Veterinary Inspector, acted for him.

BUILDINGS:- Permanent roofing of the cattle sheds is an urgent necessity as the present thatched roofings are causing much inconvenience.

The Reserve Depot was shifted to the Old Rifle Range buildings during the year but as these were not suitable for housing the cattle Government have been pleased to sanction the construction of a suitable cattle shed therefor at an estimated cost of Rs. 6,000/-

Construction of quarters at least for a few officers is an urgent need to facilitate better management.

LIBRARY AND READING ROOM:- A library and reading room was started during the year and it has now got 32 volumes on technical subjects. 10 Journals have been suscribed for in addition to 6 Journals received from the

Civil Veterinary Department and 4 from the the Director of Agriculture.

RINDERPEST BOVINE VIRUS:- 5,20,775 cc. of virus were produced from 1st July 1932 to 30th June 1933 as against 7,20,400 cc. during last year. The number of animals used during the period is 1,139 as against 1,639 animals used last year.

2,51,550 cc. of virus were supplied to the Civil Veterinary Department and 7,300 cc. to Coorg Province, as compared with 5,85,650 cc. and 1,800 cc. respectively during last year. 1,050 cc. of the virus were used for inoculation of Amrit Mahal herd.' Thus while there was an increase in the supply made to Coorg the demand for virus within the State was less owing to further decline in the number of outbreaks during the year.

RINDERPEST GOAT VIRUS:- Further work on the use of Rinderpest Goat Virus attenuated by passaging through goats as an immunising agent for rinderpest among cattle was continued. As desired by the Director of Agriculture, a systematic test of Goat Virus on 213 Amrit Mahal Animals of different ages ranging from 1 to 5 years, previously unprotected against rinderpest, was conducted near Arsikere, on 17th and 18th February 1933. Over 93% of the inoculated animals showed more or less thermal reaction which soon subsided naturally. At the end of three weeks 25% of the animals were given virulent Bovine Virus . None among the 48 animals so tested

showed any response. To further confirm the result another 15 animals out of the protected lot of different ages were inoculated with locally produced Bovine Virus on 2-4-33 after an interval of over 45 days. But ~~xxx~~ not even the least untoward effect was noticed in any of them.

With a view to ascertain the duration of immunity conferred by Goat Virus it is proposed to take up some of the remaining Goat Virus protected animals in lots at different intervals hereafter. Some interesting observations were also made in the course of these experiments.

341 goats were used during the year for fixing and passaging of Rinderpest Virus.

100 cc. of fixed virus were issued for use on the animals of the Imperial Dairy Farm and 300 cc. to the Civil Veterinary Department for use in the field. 60 cc. were used for inoculating the Amrit Mahal herd at Abbangatte kaval.

~~xxxxxxxxxxxxxxx~~ANTI RINDERPEST SERUM:- With a stock of 1,14,400 doses of serum at the beginning of the year, 5,04,525 doses of serum were produced within these twelve months. 2,44,55 doses of the Serum were supplied to the Civil Veterinary Department during the year, as against 3,10,000 doses during last year.

During the year indents for rinderpest serum from Hyderabad, Baroda, and Coorg, have also been fully complied with, the total quantity of serum supplied being 2,59,500 dose

as against 2,82,550 doses during the previous year.

HAEMORRHAGIC SEPTICAEMIA VACCINE:- During the year 40,330 doses of vaccine have been supplie to the Civil Veterinary Department, as against 21,500 doses last year. 1,590 doses of Vaccine were supplied for the first time to Baroda and 1,500 doses to Hyderabad during the present year.

ANTI HAEMORRHAGIC SEPTICAEMIA SERU 38,606 doses of Haemorrhagic Septicaemia Serum were produced. 25,052 2/3 doses were supplie to the Civil Veterinary Department as against 5,500 doses supplied during last year. 17,00 doses of the serum to Hyderabad, and 300 doses to Trichur, were supplied for the first time during the present year.

ANTI BLACK QUARTER SERUM:- 35,006 doses of Anti Black Quarter Serum were supplie to the Civil VeterinaryDepartment, as against 6,087 doses supplied last year. 11,500 doses of the serum were supplied for the first time to Hyderabad during the year.

BLACK QUARTER FILTRATE:- Several improvements have been made to increase the immunising power of this product with comparatively very satisfactory results.

1,40,187 doses of filtrate were supplied to the Civil Veterinary Department as against 62,770 doses during last year. 4,000 doses of filtrate were supplied to Hyderabad for the first time during the year.

BLACK QUARTER BACTERI :- The

BLACK QUARTER BACTERIN:- The preparation of this new product was taken on hand as it is believed to have a higher immunising value and a few tests were also conducted with encouraging results. Further tests to confirm the efficacy will be undertaken during the next year.

ANTHRAX SERUM:- With the facilities available in the new buildings it was possible this year to start preparation of Anti-Anthrax Serum in this Institute. 18,730 doses were produced and 1,000 doses were supplied to Hyderabad and 1,000 doses to Civil Veterinary Department.

SHEEP POX VACCINE:- 59.8 cc of concentrated vaccine were prepared and 55.05 cc were used to meet the demands of the Civil Veterinary Department as against 76.75 cc used during last year.

FIELD EXPERIMENTS:- 213 head of Amritmahal cattle were tested with goat virus during February 1933 near Arsikere as already detailed under "Rinderpest Goat virus". The above tests indicate that goat virus can be safely substituted with advantage for the present serum-virus simultaneous inoculation and hyperimmunisation. Seven more animals were inoculated against Black Quarter by the Sero-filtrate method on the Hessaraghatta Agricultural Farm.

During June 1933 38 animals of the Dairy Farm of the Mysore Imperial Service Lancers were immunised against Blackquarter by

sero-filtrate simultaneous inoculation followed 9 days later by a reinforcing dose of Blackquarter filtrate alone.

ROUTINE BACTERICLOGY AND PATHOLOGY:-

1,007 samples of virus were examined for contamination and 1,093 cultures were examined for aerobic and anaerobic organisms 3,229 smears were examined for protozoa and other bacterial contaminations and 1,208 post mortem examinations were conducted during the year.

REVENUE AND EXPENDITURE:- Out of Rs.1,03,700 sanctioned by Government for expenditure during 1932-33, only Rs.92,173/- was actually spent for the Institute showing thereby a saving of Rs.11,527/- in the budget grant. The cost of all products supplied to places outside the State and to the Civil Veterinary Department at the approved prevailing rates together with the amounts realised by the sale of 'done' animals, carcasses, manure etc. and the cost of the stock of all products & animals remaining at the beginning of the current year amount to Rs.2,13,357 against an expenditure of only Rs.92,173/- during the year under report, as compared with Rs.2,04,000 and Rs.1,04,940/- respectively during the previous year.

The total sales of the products to places outside the State and of done animals and carcasses within the State amount to Rs.63,383-11-0 during the year as against

Rs.60,098-8-0 last year.

Thus the work of the Institute from the financial aspect is on the whole more satisfactory than ever last year.

A reduction in the rates of all products was declared this year to keep on a par with those prevailing in the Imperial Institute of Veterinar Research, Muktesar.

GENERAL:- The Institute has become a place of scientific as well as of general interest and was visited during the year by a large number of distinguished visitors.

The biological products prepared in the Institute were exhibited during the last Dasara Exhibition in Mysore and a gold medal certificate was awarded for the products of the Institute.

Superintendent,
Serum Institute.

Appendix F G—1]

SUBJECT.....

.....

.....

Diary No. of letter replied to ....

General and Revenue Secretariat

( )

the *193* .

Date of issue 17/5/33

Signed by .....

List of enclosures.....

Copied by.....

Examined by.....

Section C-V

File No. 29-33

Serial No. 2.

No. D 2389/Sec/Genl.

To

The Superintendent,
Government Printing

Sir,

I am directed to forward herewith, a copy of the Administration Report of the Mysore Forest Department for the year 1932-33, and to request that the same may be kindly caused to be set up in type and printed and kept ready for being bound with the forest review thereon which will be sent to you in due course.

100 copies of the Report with the forest review thereon, may be kindly sent to this Office

The number of copies of the report required by the depdt may be ascertained from the Govt of Afgn

Two proof copies of the may be sent direct to the Govt of Afghanistan for Verification and final approval.

Yours etc

C[illegible] 13/11

For Secy

Memo no. A 2387 9/11/33

Copy of the above to the Govt of Afgn with reference to their letter no Per 25 of 33-34 dated 7/11/33

He is requested to intimate for Supdt, Govt Printing, the number of copies of the Report required for use in the depdt.

B O.

C[illegible]

For Secy.

C[illegible] 14/11

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

No. ₰ 2380/Sec.Genl. Dated, Bangalore, 14th Novr. 1933.

From CN 29-33-2

The *Secretary to the Government of His Highness the Maharaja of Mysore, Development Department.*

To

The Superintendent, Government Printing in Mysore,
Bangalore.

Sir,

I am directed to forward herewith a copy of the Administration Report of the Mysore Serum Institute for the year 1932-33, and to request that the same may be caused to be set in type and printed and kept ready for being bound with the Government Reveiew thereon which will be sent to you in due course.

100 copies of the Report with the Government review thereon may kindly be sent to this office. The number of copies of the report required by the Department may be ascertained from the Director of Agriculture.

Two proof copies may be kindly forwarded direct to the Director of Agriculture for verification and final approval.

I have the honour to be,

Sir,

Your most obedient servant,

Sd. S. Abdul Wajid,

SECRETARY TO GOVERNMENT,
DEVELOPMENT DEPARTMENT.

Memo.No.D. 2387 9/11/33

Copy of the above is forwarded with compliments to the Director of Agriculture in Mysore with reference to his letter No. Per.25 of 33-34 dated the 7th November 1933. He is requested to intimate the Superintendent, Government Printing, the number of copies of the Report required for use in his Department.

Department.

By Order,

For Secretary to Government,
Development Department.

G. R. S. App. F VI—G 2]

SUBJECT.....

.....

.....

Diary No. of letter replied to.....

Section C V

File No. 29 - 33

Serial No. 3.

General and Revenue Secretariat

( )

the *193* .

Proceedings of the Government of His Highness the Maharaja of Mysore.

Date of issue..... 20/12/1933.

Signed by.....

Read—

— letter No Per 25-9 33-34 dated 7th Nov 1933 from the Dy Sy Agn submitting the Annual Report of the Sheristadar Institute for the year 1932-33.

Order thereon.—No D 3000-2 dated 28/12/33

Recorded

2. Mr S D Achar was in charge of the Institute during the year under report.

3. The Institute was made permanent with effect from 1st April 1933. The resignation of the Head of the

May this be—

(i) printed ?

(ii) treated as a standing order ?

(iii) published in the Gazette, English part ?

(iv) translated ?

(v) placed at the disposal of the press ?

(vi) published in the Gazette, kannada part ?

the staff was changed from the
"Officer-in-charge" to "Superintendent"
and the staff was also reorganised.

4 Sera & Vaccines

The preparation of several
kinds of sera and vaccines on a
large scale ~~against other cattle diseases~~
in addition to anti-rinderpest
Serum & Rinderpest-virus, was
~~undertaken~~ undertaken during the year
from the C.V.D.
The demand for rinderpest-virus &
anti-rinderpest-Serum was
during the year
reduced due to decline in the
outbreaks of rinderpest in the State
It is satisfactory to note that
from outside the State
indents for the different kinds of sera & vaccines
prepared by the Institute from
are steadily growing the increase.
~~outside the State during the year increased~~

5. Investigations

It is reported that
~~investigations~~
experiments were conducted during the
year on the 'fixed' rinderpest-
after satisfactory results

goat-virus as an immunising
agent against rinderpest among cattle.

List of Enclosure

Copied by

Examined by

G. R. S. App F. G. 3.

GENERAL AND REVENUE SECRETARIAT.

(Continuation sheet draft form.)

More intensive research in the Laboratory on new biological products prepared in the Institute, was undertaken during the year.

6. Cost of Production.

It is noted that the expenditure on the sale of Vaccines supplied to places outside the State & to the C.V.D., was further reduced during the year ~~ending~~ including ending 31st March 1933.

7. General.

Many biological products of the Institute were exhibited ~~during the year~~ at the General Exhibition held during Sept. ~~Oct~~ 1932. Three papers were read at the 5th Annual Conference of the Mysore Veterinary Medical Association.

8. Conclusion.

The work of the Institute was satisfactorily during the year under report.

WD 0327—GPB—10,000—18-5-27

To the Dir of Agri
The Veterinary.

CVO 9/11. Dir of Agri

Proceedings of the Government of His Highness

the Maharaja of Mysore.

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lead.-

Letter No. Per. 25 of 1933-34 dated 7th November 1933 from the irector of Agriculture submitting the Annual Report of the Serum In- titute for the year 1932-33.

Order No. D 3000-2 | Cr. 29-33-3

Dated, Bangalore, the 20th December 1933.

R e c o r d e d .

2. Mr. B.D. Achar was in charge of the Institute during the ear under report.

3. The Institute was made permanent with effect from 1st Apri 933. The designation of the Head of the Institute was changed from th Officer-in-charge" to "Superintendent" and the staff was also reorga ised.

4. Sera and Vaccines.- The preparation of several kinds f sera and vaccines on a large scale, in addition to anti-Rinderpest erum and Rinderpest Virus, was undertaken during the year. The de- and from the Civil Veterinary Department for rinderpest virus and nti-rinderpest serum was further reduced during the year due to de- line in the outbreaks of rinderpest in the State. It is satisfac- ory to note that indents from outside the State for the different inds of sera and vaccines prepared by the Institute are steadily on he increase.

5. Investigations.- It is reported that experiments were con ucted during the year with satisfactory results on the 'fixed' rinde est goat virus as an immunising agent for rinderpest among cattle. ore intensive research in the laboratory on new biological products repared in the Institute was undertaken during the year.

6. Cost of Production.- It is noted that the expenditure on t era and vaccines supplied to places outside the State and to the Ci eterinary Department, was reduced during the year without affectir

7. General.- The biological products of the Institute were exhibited in the Dasarah Exhibition held during September 1932. Three papers were read at the 5th Annual Conference of the Mysore Veterinary Medical Association.

8. Conclusion.- The work of the Institute was satisfactory during the year under report.

Mallikarjuniah

for Secretary to Government,
Development Department.

The Director of Agriculture in Mysore.
The Senior Surgeon in Mysore.
✓ The Comptroller to Government.

Proceedings of the Government of His Highness

the Maharaja of Mysore.

Read.-

Letter No. Per. 25 of 1933-34 dated 7th November 1933 from the Director of Agriculture submitting the Annual Report of the Serum Institute for the year 1932-33.

Order No. B 3000-2/ CN. 29-33-3

Dated, Bangalore, the 28th December 1933.

R e c o r d e d .

2. Mr. S.D. Achar was in charge of the Institute during the year under report.

3. The Institute was made permanent with effect from 1st April 1933. The designation of the Head of the Institute was changed from the "Officer-in-charge" to "Superintendent" and the staff was also reorganised.

4. Sera and Vaccines.- The preparation of several kinds of sera and vaccines on a large scale, in addition to anti-Rinderpest Serum and Rinderpest Virus, was undertaken during the year. The demand from the Civil Veterinary Department for rinderpest virus and anti-rinderpest serum was further reduced during the year due to decline in the outbreaks of rinderpest in the State. It is satisfactory to note that indents from outside the State for the different kinds of sera and vaccines prepared by the Institute are steadily on the increase.

5. Investigations.- It is reported that experiments were conducted during the year with satisfactory results on the 'fixed' rinderpest goat virus as an immunising agent for rinderpest among cattle. More intensive research in the laboratory on new biological products prepared in the Institute, was undertaken during the year.

6. Cost of Production.- It is noted that the expenditure on the sera and vaccines supplied to places outside the State and to the Civil Veterinary Department, was reduced during the year without affecting their quality.

7. General.- The biological products of the Institute were exhibited in the Dasarah Exhibition held during September 1932. Three papers were read at the 5th Annual Conference of the Mysore Veterinary Medical Association.

8. Conclusion.- The work of the Institute was satisfactory during the year under report.

G. Mallikarjuniah
for Secretary to Government,
Development Department.

To

The Director of Agriculture in Mysore.

The Senior Surgeon in Mysore.

The Comptroller to Government

P. B. 18/2/34 33

App. F VI G 10. 63

Government of His Highness the Maharaja of Mysore.

GENERAL AND REVENUE DEPARTMENTS

Administration Report of the Settlement Department
Revenue Code for the year 1932-

G. O. No. D 3000-2/CV. 29-33-3 DATED 20th December 1933

May this be

i. printed ? Yes

ii. treated as a standing order ?

iii. published in the Gazette English Part ?

iv. translated ?

v. placed at the disposal of the press ?

iv. published in the Gazette Kannada Part ? Y

No, as the report can be treated as confidential

Submitted for orders

Sd/ 22/2/1934 SECR. & REV. SECRETARIAT 22 FEB 1934 DEVELOPMENT BRANCH

Sd/ 19/2/34

Sd/

ADMINISTRATION REPORT OF THE MYSORE SERUM INSTITUTE FOR THE YEAR 1932-33

WITH THE GOVERNMENT REVIEW THEREON.

Government of his highness the Maharaja of Mysore.

GENERAL AND REVENUE DEPARTMENTS.

G. O. No. D. 3000-2—C. V. 29-33-3, dated 20th December 1933.

Administration Report of the Serum Institute.

Reviews the —— for the year 1932-33.

READ—

Letter No. Per. 25 of 1933-34, dated 7th November 1933, from the Director of Agriculture, submitting the Annual Report of the Serum Institute for the year 1932-33.

ORDER NO. D. 3000-2—C. V. 29-33-3, DATED BANGALORE, THE 20TH DECEMBER 1933.

Recorded.

2. Mr. S. D. Achar was in charge of the Institute during the year under report.

3. The Institute was made permanent with effect from 1st April 1933. The designation of the Head of the Institute was changed from the "Officer-in-charge" to "Superintendent" and the staff was also reorganised.

4. *Sera and Vaccines.*—The preparation of several kinds of sera and vaccines on a large scale, in addition to anti-rinderpest serum and rinderpest virus, was undertaken during the year. The demand from the Civil Veterinary Department for rinderpest virus and anti-rinderpest serum was further reduced during the year due to decline in the outbreaks of rinderpest in the State. It is satisfactory to note that indents from outside the State for the different kinds of sera and vaccines prepared by the Institute are steadily on the increase.

5. *Investigations.*—It is reported that experiments were conducted during the year with satisfactory results on the 'fixed' rinderpest goat virus as an immunising agent for rinderpest among cattle. More intensive research in the laboratory on new biological products prepared in the Institute, was undertaken during the year.

6. *Cost of Production.*—It is noted that the expenditure on the sera and vaccines supplied to places outside the State and to the Civil Veterinary Department, was reduced during the year without affecting their quality.

7. *General.*—The biological products of the Institute were exhibited in the Dasara Exhibition held during September 1932. Three papers were read at the Fifth Annual Conference of the Mysore Veterinary Medical Association.

8. *Conclusion.*—The work of the Institute was satisfactory during the year under report.

S. ABDUL WAJID,
Secretary to Government,
Development Department.

To—The Director of Agriculture in Mysore.
The Senior Surgeon in Mysore.
The Comptroller to Government.

Exd.—C. K.

W D 1115—GPB—525—27-12-33

)py of letter No. Per. 25 of 33-34, dated 7th November 1933, from the Director of Agriculture in Mysore to the Secretary to Government, Development Department, Bangalore.

I have the honour to forward herewith the Annual Report of the Serum ıstitute for the year ending June 30th, 1933.

The marked reduction in the incidence of Rinderpest has enabled the Superin-ndent and his staff to devote increased attention to research work and to the ·eparation of sera and vaccines for the control of other important diseases of cattle ıd sheep. There has thus been a very marked increase in the supply of sera for ıe control of Hæmorrhagic Septicæmia and Black-quarter, two important cattle iseases in Mysore.

The supply in increasing quantity of Rinderpest Serum and other Sera to ·overnment Departments outside Mysore is a gratifying testimony to the quality f the products. I wish to place on record my appreciation of the manner in which Ir. S. D. Achar and the Staff working under him have carried out the important ·ork entrusted to him.

ANNUAL REPORT OF THE MYSORE SERUM INSTITUTE, BANGALORE FOR THE YEAR 1932-33.

Introduction.

An important feature of the year under report is that the Serum Institute which was started in the year 1927 on an experimental and temporary basis has been made permanent with effect from 1st April 1933 in consideration of the steady progress shown and the considerable revenue realised by the Institute during all these years, and it is indeed highly gratifying to note that the importance and usefulness of the Institute have thus been recognised.

Government were also pleased to sanction in their Order No. D. 5392-3—C. V. 60-32-3, dated 27th April 1933, the reorganisation of the Institute with effect from 1st April 1933 and to appoint me as "Superintendent" on a revised grade of pay changing the original designation of "Officer in charge." The post of Assistant Superintendent which had been kept vacant till 1st April 1933 was omitted and the place of the Bacteriological Assistant was continued.

Although the Institute was started primarily for the purpose of preparing only Anti-Rinderpest Serum and Rinderpest Virus, required by the Mysore Civil Veterinary Department for their extensive campaign of S. S. inoculation against Rinderpest, yet, not only were these materials produced on a sufficiently large scale to meet adequately the demands for them from within as well as from outside the State, but year after year, several other kinds of sera and vaccines against other cattle diseases, only next in importance to Rinderpest, such as, Hæmorrhagic Septicæmia, Black-quarter, Anthrax, etc., were added to the list of products made available for supply from the Institute.

These products have attracted large and repeated indents even from other Indian States and have thus become a source of increasing revenue to the State.

The main item of work done in the Institute during the year 1932-33 is as usual the preparation of several kinds of sera and vaccines on a large scale, so as to meet fully and promptly not only the requirements of the Mysore Civil Veterinary Department but also the demands for them from several other Indian States, such as, Hyderabad, Baroda, Cochin, Coorg, etc. Whereas in the previous years indents for only Rinderpest Virus and Anti-Rinderpest Serum were received from outside the State, during the year under report requisitions for Hæmorrhagic Septicæmia Vaccine and Anti-Hæmorrhagic Septicæmia Serum, Black-quarter filtrate and Anti-Black-quarter Serum and Anti-Anthrax Serum have also been received besides indents for much larger quantities of the former.

The preparation of new products, such as, Rinderpest Goat Virus, Black-quarter filtrate and Serum, Hæmorrhagic Septicæmia Serum and Vaccine, Sheep-pox Vaccine, and Anti-Anthrax Serum, etc., was undertaken on a much larger scale after the Institute was moved into its present new buildings at Hebbal in March 1932.

A noticeable feature in the work of the Institute during the year under report is that preparation of two fresh products, *viz.*, Anti-Anthrax Serum and Black-quarter Bacterin was undertaken. The preparation of the former is so satisfactory and successful that regular supply of this product on indents, is being made to the Mysore Civil Veterinary Department as well as to places outside the State, and the latter product is under test.

Further tests with the 'fixed' Rinderpest Goat Virus, as an immunising agent for Rinderpest among cattle, were also conducted during this year on a more systematic and larger scale with efficacious and satisfactory results which are detailed in a subsequent paragraph. These tests confirm our view that the Goat Virus inoculation as a single vaccine for plains cattle against Rinderpest may be adopted with advantage in place of the present serum simultaneous method of inoculation and subsequent test inoculation which are comparatively tedious and costly.

More intensive research in the laboratory to perfect these new products and larger field tests to confirm their safety and efficacy were also undertaken during the year both in the villages and on Government Amritmahal cattle. These will be dealt with under appropriate headings in subsequent paragraphs.

During the year under report an important change in the procedure of supplying sera and vaccines to the Veterinary Inspectors in the State was adopted so as to suit the conveniences of the Veterinary Department. Prior to 1st July 1932 the products were being supplied to the Superintendent, Civil Veterniary Department who would despatch them to the Veterinary Inspectors, according to their requirements. But as this arrangement involved avoidable trouble and duplication of work in the office of the Superintendent, Civil Veterinary Department, besides causing delay in despatching consignments, the Institute undertook at first, as a tentative measure, with effect from 1st July 1932, the responsibility of despatching the products direct to the Veterinary Inspectors, immediately on receipt of indents from them, and also of receiving the empties returned by them.

This arrangement is being however continued as it is found advantageous and as it ensures timely supplies to the Veterinary Inspectors, although it has thrown a considerable amount of additional work on the already heavily worked staff of the Institute.

II. Administration.

I was in charge of the Institute throughout the year under report.

Mr. P. U. Nayar continued to be the Bacteriological Assistant. He was on privilege leave for 2 months and 15 days from 10th September 1932 during which period Mr. N. R. Srinivasa Iyengar, Seniormost Veterinary Inspector, was appointed as acting Assistant Superintendent, as per Government Notification No. D. 1879—C. V. 32-25, dated 2nd November 1932.

Mr. K. Ranganatha Rao, Assistant Superintendent, Research Section of the Civil Veterinary Department, continued his research work on Johne's disease, etc. in the Institute during the year.

III. Staff.

The staff of the Institute consists of six Veterinary Inspectors, and eleven Salustries in the Veterinary Section, seven Clerks in the Office Section, two Laboratory Assistants, one Mechanic, one Media man, and one Serum Room Attendant, one carpenter and one packer among the Technical Staff, and a Menial Section made up of one maistry, 63 cattlemen, six thoties, five peons and two watchmen.

The above includes the additional staff sanctioned in Government Order No. D. 510–11—C. V. 84-30-5, dated 24th July 1931 which was fully given effect to during the year under review.

IV. Buildings.

The existing cattle sheds having only thatched roofings, are liable to too frequent disrepair especially as the buildings are frequently exposed to heavy winds from all sides. It will save much inconvenience and recurring expenses if permanent roofing of the sheds is sanctioned as suggested in last year's report.

The Reserve depot, where newly purchased animals are kept under observation prior to their use in the Institute, continued to be located till 21st July 1932 in a rented Chattram near Sampange tank. Thereafter it was shifted to the Old Rifle Range Buildings, a mile to the south of the Institute so as to have the animals within easy reach of the Institute. But as these buildings are in a very dilapidated condition and not suited for housing cattle, Government have been pleased to sanction the construction of a suitable cattle shed for accommodating the reserve supply of animals at an estimated cost of Rs. 6,000 and it is expected that the work will be taken up early.

There are at present no quarters attached to the Institute either for the officers or for the staff. Construction of quarters at least for the Superintendent, and for a Veterinary Inspector on duty, has been proposed and recommended by the Director, to ensure better supervision and management, to enable closer and more frequent observation of experimental cases and animals under test, and to facilitate continuous laboratory and research work. Moreover, as the Institute is situated about five miles away from the city, necessity for the quarters is felt all the more

keenly and this want was also mentioned in last year's report. It is therefore trusted that this matter will receive the urgent and favourable consideration of the Government.

The incinerator which was under construction last year is being used since March 1933. Certain improvements and alterations, however, are still found necessary to make it efficient and it is expected that they will be attended to early.

A small building for locating a De Laitte gas plant was also built during the year and the work of laying gas pipes is under progress.

During the year avenue trees and shade trees consisting mostly of Eucalyptus, Peltiform, Cassia Javanica, Gold mohurs, etc., were planted along the roads and a small ornamental garden was laid in front of the Institute with a fountain in the centre.

A portion of the grounds belonging to the Institute was brought under cultivation and maize was sown. The cultivation area supplied about 32 tons of green maize which was used as fodder for the animals during the year.

Library and Reading Room.

A library and reading room was started in the middle of September 1932, and it has now got 32 volumes on different scientific subjects. Ten journals were subscribed for during the year in addition to six journals received from the Civil Veterinary Department, and four from the Office of the Director of Agriculture. A few bulletins and reports were also exchanged during the year.

Animals used.

During the year 516 buffaloes, 1,325 buffalo bull calves, 341 goats, 33 sheep, 22 rabbits and 69 guinea pigs were admitted for use for the production of the various sera and vaccines and Rinderpest virus, and for purposes of tests.

Bovine Rinderpest Virus.

During the year there was a drop in the demand for Rinderpest virus and Anti-Rinderpest serum compared to that of previous year due to a further decline in the incidence of the disease in the State, although there was a considerably larger demand for the other products.

1,139 animals were used for virus production as against 1,639 animals last year and against 2,440 animals in the year before last and this decrease may be attributed to the further decline in the number of outbreaks of Rinderpest in the State. And again only 147 calves were rejected during the year as non-reactors, *i.e.*, as not showing the clinical signs of the disease in time as against 230 rejected last year for the same reason. 5,20,775 c.c.'s of rinderpest virus were produced during the year as against 7,20,400 c.c.'s produced last year. Although the supply of virus to the Civil Veterinary Department in Mysore during the year, as compared with that of last year has fallen from 5,85,650 c.c. to 2,51,550 c.c. on account of the less number of outbreaks of the disease in the State, the supply of the same to the Coorg Province during the year was over four times what it was in the previous year. 7,300 c.c.'s of the virus were supplied during the year to Coorg as against 1,800 c.c.'s sent last year.

Rinderpest Goat Virus.

In addition to the large amount of work on Goat Virus done so far, in this Institute and by the Civil Veterinary Department in the previous years, further work on the use of Goat Virus as a single vaccine for immunising cattle against Rinderpest, was continued during the year. Finding that the virus obtained by mere passaging of virulent bovine virus through goats was at any stage either unsafe or unreliable as regards its reaction on cattle, attempts were made to cultivate it in the body fluids, but this also was found unsatisfactory. Attempts to fix the virus in the uterine fluid of a pregnant goat were undertaken and although there were a few failures in the beginning, we have been successful in evolving a strain of virus that has undergone 26 passages through goats during the year, without getting unduly exalted or attenuated. Periodical tests by inoculation into bovines have demonstrated that the fixed virus can be relied upon to set up only a definite and decided reaction in plains cattle.

With a view to arrive at more definite conclusions regarding the effect of fixed Rinderpest goat virus on cattle and the solidity of immunity conferred, it was decided at the instance of the Director of Agriculture to conduct a thorough and systematic test on Government Amritmahal cattle which had never been previously protected against Rinderpest. The Live Stock Expert was kind enough to place herd No. 3 of the Amritmahal Department which consisted of about 230 animals at our disposal for the purpose.

213 animals of different ages belonging to this herd were inoculated with goat virus during February 1933. The temperature of 155 animals was regularly noted and recorded for ten days after inoculation. Over 93 per cent of these showed a more or less febrile reaction only which soon subsided. Another interesting fact that was revealed in the course of observations was that the higher thermal reaction was recorded more among animals under two years of age. After three weeks in March 1933 an immunity test was held on 48 of the goat virus protected animals of different ages by inoculating them with bovine virus and their temperature recorded for ten days. None among the 48 showed any response to the bovine virus.

A second test with locally drawn bovine virus was done on another 15 goat virus protected animals of different ages of the same herd on 2nd April 1933 after an interval of over 45 days, but not the least untoward effect was noticed in any of them.

The results of these tests indicate that goat virus can be safely used on plains cattle and that it confers an immunity, solid enough to withstand an infection with a fairly good dose of bovine virus.

In order to ascertain the duration of the immunity resulting from Goat Virus inoculation it is proposed to take up some of the other Goat Virus protected animals of this herd for tests with bovine virus at different intervals.

24 calves were used for a test for determining the period of viability of goat virus preserved at o°c. The results obtained furnish evidence to show that the virus can remain quite active up to 12 days at least from the date of production if kept in cold storage. Further tests to confirm this and also to ascertain the duration of life of the virus at room temperature will be taken up during the next year.

Anti-Rinderpest Serum.

There were 115 unused serum producers on hand on the 1st July 1932. During the year under review 405 animals were purchased making up a total of 520 animals, of which 516 were used for the production of Anti-Rinderpest Serum as against 400 in the previous year. During the course of the year 40 of these were again used for preparing Anti-Blackquarter Serum, 80 for Anti-Hæmorrhagic Septicæmia Serum, and 36 for Anti-Anthrax Serum. There were 54 deaths among the producers of these several sera during the year as against 78 in the previous year.

5,04,525 doses of Rinderpest Serum were produced during the year as against 4,71,759 doses in the year 1931-32.

There were 1,14,400 doses of serum remaining at the commencement of the year. 5,04,525 doses of the serum were produced within these 12 months. Of the total quantity of 6,18,925 doses available for supply, 2,44,550 doses were supplied to the Civil Veterinary Department and 2,59,500 doses were sold to places outside the State, such as Hyderabad, Baroda and Coorg, as against 3,10,000 doses and 2,82,550 doses issued respectively during the previous year. 8,225 doses were made use of in the Institute.

During the year the improvements effected in the preservation and storage of biological products in the efficient refrigerator provided, have enabled us to hold larger stocks of serum for prompt supplies, besides reducing our losses due to contamination during storage, compared to the previous year and the year before. The quantity discarded has been almost negligible being about 0·2 per cent. It is contemplated to take up different kinds of preservatives for sera during the coming years.

The balance of Anti-Rinderpest Serum on hand at the end of the year was 2,02,000 doses.

Investigation as to the possibilities of producing a potent immune serum by injecting buffaloes with a single dose of goat virus alone, was undertaken on 18 buffaloes and a brew of serum has been produced. It is proposed to undertake animal tests with this serum during the next year.

Hæmorrhagic Septicæmia Vaccine.

40,330 doses of the product were issued to the Civil Veterinary Department as against 21,500 doses last year. For the first time indents for 1,500 doses from Hyderabad and 1,590 doses from Baroda were received for this product during the year and complied with.

During the year three different strains of Pasteurella bovisepticus were maintained in the laboratory and a vaccine incorporating these strains was manufactured to make it polyvalent. Meat Digest broth adjusted to p. H., 6·8 was the media employed and found suitable.

Anti-Hæmorrhagic Septicæmia Serum.

Out of the animals used for the production of Anti-Rinderpest Serum, 80 were later on immunised and used for producing Hæmorrhagic Septicæmia Serum.

38,606 doses of this serum were produced and 25,052⅔ doses were issued to the Civil Veterinary Department as against 5,982 doses produced and 5,500 doses supplied to the Department in the previous year. 17,000 doses of the serum to Hyderabad and 300 doses to Trichur, were supplied for the first time during the year.

Anti-Black-quarter Serum.

Out of the animals used for the production of Anti-Rinderpest Serum 40 were later on immunised and used for producing Black-Quarter Serum.

35,006 doses were issued to the Civil Veterinary Department as against 6,087 doses supplied last year. For the first time 11,500 doses of this serum were supplied to Hyderabad during the year.

Black-quarter Filtrate.

After experimental investigations several modifications and improvements in the method of preparation of Black-quarter filtrate as for example inclusion of additional strains, more favourable p. H., adjustment, better anærobic conditions, further enrichment of media, minimising exposure during preparations, etc., were effected with the result that a comparatively far more potent filtrate was produced. The results of the use of this improved product in the field were also very satisfactory.

During the year simultaneous use of Black-quarter Serum and Filtrate followed by a reinforcing dose of Black-quarter Filtrate alone on the 9th day was advised for employment in enzootic areas especially, and in the scene of out breaks. Field tests carried out on Government animals in the Hebbal Dairy, Imperial Lancers Dairy, and Government Cattle Breeding Station at Ajjampur, have confirmed our view with regard to the efficacy of the double method recommended.

1,40,187 doses were supplied to the Civil Veterinary Department during the year under report as against 62,770 doses supplied last year. 4,000 doses of the filtrate were supplied to Hyderabad for the first time during the year.

Black-Quarter Bacterin.

The preparation of this new product was taken on hand as it is believed to have a higher immunising value being a formalised whole killed culture of the organisms; and a few tests were also conducted with encouraging results. Further tests to confirm its efficacy will be undertaken during the next year.

Anti-Anthrax Serum.

With the facilities available in the new buildings it was possible this year to start preparation of Anti-Anthrax Serum in the Institute. 18,730 doses were produced and 1,000 doses were supplied to Hyderabad and 100 doses to the Mysore Civil Veterinary Department.

36 animals that were used for Rinderpest Serum production were later on immunised and used for producing Anthrax Serum.

Sheep-Pox Vaccine.

59·8 c.c.'s of concentrated vaccine were prepared and 55·05 c.c.'s were supplied to the Civil Veterinary Department as against 76·75 c.c.'s issued during last year.

The statistical statements of all products giving full details as to the quantity produced, supplied and balance remaining for the year 1932-33 together with the details as to the sales effected and expenditure incurred are appended to this report.

Field Experiments.

213 head of Amritmahal cattle were tested with goat virus during February 1933 near Arsikere as already detailed under "Rinderpest Goat Virus."

7 more animals were inoculated against Black-quarter by the sero-filtrate method on the Hebbal Agricultural Farm.

During June 1933, 38 animals of the Dairy Farm of the Mysore Imperial Service Lancers were immunised against Black-quarter by sero-filtrate simultaneous inoculation followed nine days later by a reinforcing dose of Black-quarter filtrate alone.

Routine Bacteriology and Pathology.

During the year a large amount of routine work was carried out in the laboratory in connection with the testing and standardisation of products issued by the Institute and in the examination of smears received for opinion.

The following are the details of the smears examined :—

Anthrax	..	...	...	169
Black-quarter	...	...	...	117
Hæmorrhagic Septicæmia	...	...	...	207
Johne's	...	...	...	14
Piroplasma	...	...	...	916
Miscellaneous	...	...	...	1,806
			Total ...	3,229

In addition cultural examinations of 1,007 samples of Rinderpest virus and 86 samples of sera and vaccines were made. Estimations of p. H., values of 56 samples of media and six samples of sera were also done.

Routine pathology consisted of systematic *post mortem* examination of all virus producers and experimental animals maintained at the Institute and the following table gives the details of such examinations :—

Kind of animal	Confirmed					
	Rinderpest	Hæmorrhagic Septicæmia	Black-quarter	Anthrax	Others	Total
Buffaloes	35	7	8	3	...	53
Buffalo calves	899	5	25	4	1	934
Goats	109	...	..	6	1	116
Sheep	5	...	2	13	1	21
Rabbits	...	13	...	3	2	18
Guinea pigs	..	...	52	13	1	66

During the course of the *post mortem* examinations sixty-five samples of Helminths were collected and these will be classified.

Revenue and Expenditure.

The total sales of the products, only to places outside the State, and of "Done" animals, manure, etc., within the State, amounted to Rs. 63,383-11-0, during the year under report as against Rs. 60,098-8-0, last year.

Out of Rs. 1,03,700 sanctioned by Government for expenditure during 1932-33 a sum of only Rs. 92,173 was spent saving Rs. 11,527 in the budget grant.

The cost of products supplied to places outside the State and to the Civil Veterinary Department at the approved rates together with the amount realised by the sale of done animals, manure, etc., and the cost of the stock of all products and animals remaining at the beginning of the current year, amount to Rs. 2,13,357 against an expenditure of only Rs. 92,173 during the year under report as compared with Rs. 2,04,000 and Rs. 1,04,940, respectively, during the previous year ; and thus

it is seen that the Institute has been working at a considerable profit and its financial position is also on the whole more satisfactory than last year's.

The following are the details as to the cost of sera and vaccines supplied to the Mysore Civil Veterinary Department during the year :—

Name of the product	Quantity supplied during 1932-33	Cost of the product at the approved rate
		Rs. a. p.
Anti Rinderpest Serum	2,44,550 doses	38,912 8 0
Rinderpest Virus	2,51,550 c.c.	15,721 14 0
Anti-Hæmorrhagic Septicæmia Serum	25,052 ⅔ doses	8,388 14 8
Anti-Black-quarter Serum	35,006 „	10,758 8 0
Anthrax Serum	100 doses	25 0 0
Hæmorrhagic Septicæmia Vaccine	40,330 „	6,828 2 0
Black-quarter Filtrate	1,40,187 „	33,667 1 0
Sheep-pox Vaccine	55 c.c. (Concentrated).	20 10 0
	Total ...	1,14,322 9 8

Consequent on the reduction in the prices of sera and vaccines produced in the Imperial Institute of Veterinary Research, Muktesar from 1st April 1933 Government have sanctioned in their Order No. D. 5256-7—C. V. 74-32-2, dated 21st April 1933, certain revised rates of products of this Institute also in order to keep in line with the reduced rates at Muktesar so that indents for products from outside the State may be continued to be placed with this Institute. Although this may affect the revenue of the Institute to some extent it is hoped that much larger indents will be received on account of the reduced rates of the products.

General.

The biological products prepared in the Institute and the photographs of the new Institute buildings were arranged to be exhibited during the last Dasara Exhibition held at Mysore in September 1932, and a gold medal certificate was awarded for the products of the Institute. These products were also arranged to be exhibited at the Health Exhibition held at Anekal in March 1933.

A lecture on "Some problems in Infection and Immunity" was delivered by me on 10th April 1933 in the Indian Institute of Science.

At the 5th Annual Conference of the Mysore Veterinary Medical Association held in the month of June 1933, a paper on "Principles and Problems of Immunology" was read by me and another on "The recent field Experiments with Goat Virus alone in Amritmahal Cattle at Arsikere" by Mr. P. U. Nayar, Bacteriological Assistant, and the third on "The Preparation and Standardisation of Black-quarter filtrate" by Mr. V. S. Kuppuswamy Modaliar, Vetrinary Inspector of the Institute.

Mr. G. N. Srikantiah, Veterinary Inspector attached to the Institute, underwent a post-graduate course during the year in the Imperial Institute of Veterinary Research, Muktesar, and one Mr. M. T. Aung, a Burmese student of the Bengal Veterinary College, underwent training in this Institute from 1st April 1933 to 26th June 1933.

The Institute has become a place of scientific as well as of general interest and was visited during the year by a large number of distinguished visitors, *viz.*, Col. Olver, Veterinary Adviser to the Government of India; Veterinary Officer from Jaipur; Nawab of Janjira; Major Harris; Staff and Students of the Bio-Chemical Section of the Indian Institute of Science; Students and those undergoing training in the Imperial Diary Farm; Members of the Agricultural Union; Rao Bahadur M. C. Rangiengar; Students of the Central College, Second Rovers; Professors and students of the Coimbatore Agricultural College; Mr. Somanna, Veterinary Officer from Coorg; Director of Land Mortgage Bank, Bangalore, and some members of the Legislative Council and the Representative Assembly.

Before concluding the report I wish to thank all those that co-operated in the work of the Institute during the year. I am highly obliged to the Live Stock Expert in Mysore, who provided us with all the facilities to conduct goat virus experiments on Amritmahal cattle at Arsikere. I am grateful to the Superintendent, Civil Veterinary Department, for his ever-ready and cordial co-operation on all occasions. My thanks are also due to the Agricultural Engineer and the Assistant Agricultural Engineer, who have been taking personal interest, regarding the Institute buildings and machines, and my thanks are due to no less extent to the Senior Artist of the Agricultural Department for his ready co-operation in taking photographs of the Scientific operations in the Institute. I feel I will be failing in my duty if I do not make a special mention of Mr. K. Ranganatha Rau, Assistant Superintendent, Scientific Section, Civil Veterinary Department, for his valuable assistance and his efforts in the fixing of goat virus in this Institute. I take this opportunity to express my gratitude to Mr. L. P. Mascarenhas, Technical Assistant to the Chief Conservator of Forests, and to Mr. M. G. Venkata Rau, Assistant Conservator of Forests, for having supplied us many valuable plants of different selected varieties to be planted on the Institute grounds. I am also greatly obliged to Dr. V. K. Badami, Economic Botanist in Mysore, for his valuable advice and supervision in laying the garden and planting shade trees on the Institute grounds. My thanks are also due to the several Veterinary Inspectors for having assisted the Institute in the collection of material for Black-quarter and thus co-operated with the Institute.

In concluding the report, I wish to record my great appreciation of the good work done during the year by Mr. P. U. Nayar, Bacteriological Assistant and by the rest of the Institute, executive as well as ministerial, with great willingness and enthusiasm although they had to work overtime very often to cope with the increasing work in the Institute.

S. D. ACHAR,
Superintendent,
Serum Institute.

Statement showing the quantity of Anti-Rinderpest Serum produced, supplied, and balance remaining monthly for the year 1932-33.

Month	Balance at the beginning of the month	Quantity produced during the month	Quantity returned from the Civil Veterinary Department	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage, etc.	Total	Stock of Serum on the last day of the month
					Civil Veterinary Department	Outside the State			
	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses
July 1932	1,14,400	...	25,000	1,39,400	28,000	30,500	1,100	59,600	84,800
August ,, ...	84,800	1,52,200	800	2,37,800	20,000	33,000	200	53,200	1,84,100
September ,, ...	1,84,100	16,200	6,000	2,06,800	12,000	13,000	...	25,000	1,81,300
October ,, ...	1,81,300	...	11,050	1,92,350	8,000	33,000	1,300	42,300	1,50,050
November ,, ...	1,50,050	...	6,750	1,56,800	19,500	31,000	600	51,100	1,05,700
December ,, ...	1,05,700	1,41,025	13,000	2,59,725	5,000	35,000	325	40,325	2,19,400
January 1933	2,19,400	...	4,550	2,23,950	13,000	30,000	600	43,600	1,80,350
February ,, ...	1,80,350	...	...	1,80,350	29,000	17,000	4,100	50,100	1,30,250
March ,, ...	1,30,250	...	8,750	1,39,000	4,000	16,000	650	20,650	1,18,350
April ,, ...	1,18,350	1,95,100	3,000	3,16,450	34,050	6,000	...	40,050	2,76,400
May ,, ...	2,76,400	...	8,150	2,84,550	57,000	15,000	50	72,050	2,12,500
June ,, ...	2,12,500	...	10,150	2,22,650	20,000	...	650	20,650	2,02,000 (5 c.c. a dose.)
Total ...	1,14,400	5,04,525	96,700	7,15,625	2,41,550	2,59,500	9,575	5,13,625	

Statement showing the quantity of Anti-Hæmorrhagic Septicæmia Serum produced, issued, and balance remaining monthly for the year 1932-33.

Month	Balance at the beginning of the month	Quantity produced during the month	Quantity returned from the Civil Veterinary Department	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage, etc.	Total	Stock of Serum on the last day of the month
					Civil Veterinary Department	Outside the State			
	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses
July 1932	253	...	2,633½	2,886½	1,300	...	666½	1,966½	919½
August ,, ...	919½	9,280	...	10,199½	913	4,000	76½	5,019½	5,180
September ,, ...	5,180	...	333½	5,513½	2,533½	1,000	...	3,533½	1,980
October ,, ...	1,980	4,500	1,750	8,230	2,690	2,000	20	4,910	3,320
November ,, ...	3,320	4,885	369½	8,574½	4,229½	3,500	20	7,749½	825
December ,, ...	825	4,716	713½	6,254½	2,413½	...	20	2,433½	3,821
January 1933	3,821	...	1,080	4,901	1,300	...	...	1,300	3,601
February ,, ...	3,601	10,715	3,563½	17,879½	810	500	...	1,310	16,569½
March ,, ...	16,569½	4,510	580	21,659½	586½	...	6	592½	21,066½
April ,, ...	21,066½	...	826½	21,893½	433½	1,300	...	1,733½	20,160
May ,, ...	20,160	..	780	20,940	3,840	...	...	3,840	17,100
June ,, ...	17,100	...	216½	17,316½	3,773½	5,000	½	8,773½	8,543 (16 c.c. a dose)
Total ...	253	38,606	12,846½	51,705½	25,052½	17,300	809½	43,162½	

S. D. ACHAR,
Superintendent, Serum Institute.

Statement showing the quantity of Anti-Black-Quarter Serum produced, issued, and balance remaining monthly for the year 1932-33.

Month	Balance at the beginning of the month	Quantity produced during the month	Quantity returned from the Civil Veterinary Department	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage, etc.	Total	Stock of Serum on the last day of the month
					Civil Veterinary Department	Outside the State			
	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses
July 1932	596	...	1,000	1,596	916¼	...	...	916¼	679¾
August	679¾	...	...	679¾	166¾	...	...	166¾	512¾
September	512¾	...	350	862¾	846	...	...	846	16¾
October	16¾	19,880	..	19,396¾	1,076¾	1,000	...	2,076¾	17,320
November	17,320	25,150	216¾	42,686¾	946¾	1,000	...	1,946¾	40,740
December	40,740	...	718¾	41,458¾	2,720	1,000	...	3,720	37,738¾
January 1933	37,738¾	...	340	38,078¾	3,100	...	...	3,100	34,978¾
February	34,978¾	...	2,223¼	37,202	2,850	...	...	2,850	34,352
March	34,352	...	1,900	36,252	3,433¾	...	...	3,433¾	32,818¾
April	32,818¾	...	750	33,568¾	2,650	...	...	2,650	30,918¾
May	30,918¾	...	663¼	31,582	9,913¾	1,000	...	10,913¾	20,668¾
June	20,668¾	...	656¼	21,325¼	6,386¼	7,500	20	13,906¼	7,418¾ (15 c.c. a dose.)
Total ...	596	44,530	8,818¾	53,944¾	35,006	11,500	20	46,526	

Statement showing the quantity of Anti-Anthrax Serum produced, issued, and balance remaining monthly for the year 1932-33.

Month	Balance at the beginning of the month	Quantity produced during the month	Quantity returned from the Civil Veterinary Department	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage, etc.	Total	Stock of Serum on the last day of the month
					Civil Veterinary Department	Outside the State			
	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses
July 1932									
August									
September									
October									
November	...	...	...	Nil	...	...	...	...	...
December									
January 1933									
February									
March									
April	...	7,530	...	7,530	...	...	60	60	7,470
May	7470	7,640	...	15,110	...	...	68	68	15,042
June	15,042	3,560	...	18,602	100	1,000	...	1,100	17,502 15 (c.c. a dose.)
Total ...	...	18,730	...	18,730	100	1,000	128	1,228	

S. D. ACHAR,
Superintendent, Serum Institute.

Statement showing the quantity of Hæmorrhagic Septicæmia Vaccine prepared, issued, and balance remaining monthly for the year 1932-33.

Month	Balance at the beginning of the month	Quantity produced during the month	Quantity returned from the Civil Veterinary Department	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage, etc.	Total	Stock of Serum on the last day of the month
					Civil Veterinary Department	Outside the State			
	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses
July 1932	5,290	5,300	5,010	15,600	5,220	50	...	5,270	10,330
August ,, ...	10,330	...	160	10,490	6,420	1,040	100	7,560	2,930
September ,, ...	2,930	1,700	240	4,870	4,370	500	...	4,870	...
October ,, ...	...	5,830	2,400	7,730	1,490	...	...	1,490	6,240
November ,, ...	6,240	800	120	7,160	4,040	...	...	4,040	3,120
December ,, ...	3,120	...	1,450	4,570	2,490	...	...	2,490	2,080
January 1933	2,080	2,200	1,750	6,030	1,760	...	...	1,760	4,270
February ,, ...	4,270	...	1,130	5,700	350	...	...	350	5,350
March ,, ...	5,350	...	710	6,060	2,450	...	...	2,450	3,610
April ,, ...	3,610	...	1,550	5,160	800	...	...	800	4,360
May ,, ...	4,360	...	1,710	6,070	3,690	...	...	3,690	2,380
June ,, ...	2,380	8,800	100	11,280	7,250	1,500	30	8,780	2,500 (5 c c. a dose)
Total ...	5,290	24,130	16,630	46,050	40,330	3,090	130	43,550	...

Statement showing the quantity of Black-Quarter Filtrate prepared, issued and balance remaining monthly for the year 1932-33.

Month	Balance at the beginning of the month	Quantity produced during the month	Quantity returned from the Civil Veterinary Department	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage, etc.	Total.	Stock of Serum on the last day of the month
					Civil Veterinary Department	Outside the State			
	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses
July 1932	3,850	19,600	450	23,900	17,750	...	...	17,750	6,150
August ,, ...	6,150	1,585	50	7,785	6,550	...	325	6 875	910
September ,, ...	910	22,547	150	23,607	23,107	500	...	23,607	...
October ,, ...	...	5,625	1,700	7,325	6,775	500	...	7,275	50
November ,, ...	50	24,425	2,630	27,105	19,050	500	50	19,600	7,505
December ,, ...	7,505	4,300	1,350	13,155	8,555	...	...	8,555	4,600
January 1933	4,600	1,900	950	7,450	3,350	...	...	3,350	4,100
February ,, ...	4,100	9,500	4,250	17,850	3,800	...	100	3,900	13,950
March ,, ...	13,950	...	3,400	17,350	7,100	...	...	7,100	10,250
April ,, ...	10,250	3,800	1,450	15,500	8,550	...	...	8,550	6,950
May ,, ...	6,950	8,950	2,950	18,850	18,350	...	...	18,350	500
June ,, ...	500	19,000	650	20,150	17,250	2,500	...	19,750	400 (5 o.c. a dose)
Total ...	3,850	1,21,232	19,980	1,45,062	1,40,187	4,000	475	1,44,662	...

S. D. ACHAR,
Superintendent, Serum Institute.

Statement showing the quantity of Sheep-pox Vaccine prepared, issued, and balance remaining monthly for the year 1932-33.

Month	Balance at the beginning of the month	Quantity produced during the month	Quantity returned from the Civil Veterinary Department	Total	Quantity supplied to		Quantity of Serum used in the Institute including wastage etc.	Total	Stock of Serum on the last day of the month
					Civil Veterinary Department	Outside the State			
	c. c.	c. c.	c. c.	c. c.	c. c.	c. c.	c. c.	c. c.	c. c.
July 1932	24·995 Concentrated	..	..	24·995 Concentrated	2·5 Concentrated	..	·25 Concentrated	2·75 Concentrated	22·245 Concentrated
August ,, ...	22·245 conc.	..	..	22·245 conc.	·750 conc.	..	..	·750 conc.	21·495 conc.
September ,, ...	21·495 conc.	..	..	21·495 conc.	1·75 conc.	..	..	1·75 conc.	19·745 conc.
October ,, ...	19·745 conc.	25·1	..	44,845 conc.	..	..	·5 conc.	·5 conc.	44·345 conc.
November ,, ...	44·345 conc.	..	..	44,345 conc.	..	..	..	..	44·345 conc.
December ,, ...	44·345 conc.	..	..	44·345 conc.	7 conc.	..	·5 conc.	7·5 conc.	36·845 conc.
January 1933	36·845 conc.	..	..	36·845 conc.	13 conc.	..	·5 conc.	13·5 conc.	23·345 conc.
February ,, ...	23·345 conc.	..	..	23·345 conc.	2·5 conc.	..	·5 conc.	3 conc.	20·345 conc.
March ,, ...	20·345 conc.	34·700 conc.	..	55·045 conc.	10 conc.	..	10·5 conc.	20·5 conc.	34·545 conc.
April ,, ...	34·545 conc.	..	..	34·545 conc.	7·250 conc.	..	·5 conc.	7·750 conc.	26·795 conc.
May ,, ...	26·795 conc.	..	..	26·795 conc.	·7 conc.	..	·5 conc.	7·5 conc.	19·295 conc.
June ,, ...	19·295 conc.	..	..	19·295 conc.	3·3 conc.	..	·2 conc.	3·5 conc.	15·795 conc.
Total ..	24·995 Concentrated	59·8 Concentrated	..	84·795 Concentrated	55·050 Concentrated	..	13·95 Concentrated	69 Concentrated	

S. D. ACHAR,
Superintendent, Serum Institute.

Statement showing the quantity of Rinderpest Virus produced, issued, and balance remaining monthly for the year 1932-33.

Month		Balance at the beginning of the month	Quantity produced during the month	Quantity returned from the Civil Veterinary Department	Total	Quantity supplied to		Quantity of virus used in the Institute including wastage, etc.	Total	Stock of virus on the last day of the month
						Civil Veterinary Department	Outside the State			
		Ozs.	Ozs.	Ozs.	Ozs.	Ozs.	Ozs.	Ozs.	Ozs.	Ozs.
July	1932	334	2,125	...	2,459	674	11	1,497	2,182	277
August	,,	277	1,938	...	2,215	717	33	1,158	1,908	277
September	,,	277	1,487	...	1,764	530	19	1,035	1,584	180
October	,,	180	2,021	...	2,201	891	48	1,026	1,965	236
November	,,	236	1,392	...	1,628	435	62	915	1,472	156
December	,,	156	1,047	...	1,203	469	21	604	1,094	109
January	1933	109	1,499	...	1,608	541	19	915	1,475	130
February	,,	130	1,396	...	1,526	1,065	24	265	1,354	172
March	,,	172	1,596	...	1,768	685	14	893	1,592	176
April	,,	176	1,441	...	1,617	766	18	687	1,471	146
May	,,	146	2,664	...	2,810	2,112	9	285	2,436	374
June	,,	374	2,225	...	2,599	1,054	14	1,330	2,398	201 ozs. or 5,025 c.c.
	Total ...	334 ozs. or 8,350 c.c.	20,831 ozs. or 5,20,775 c.c.	...	21,165 ozs. or 5,29,125 c.c.	10,062 ozs. or 2,51,550 c.c.	292 ozs. or 7,300 c.c.	10,610 ozs. or 2,65,250 c.c.	20,964 ozs. or 5,24,100 c.c.	

Besides 902 ozs. of goat virus were prepared during the year, 1932-33.

Statement showing the quantities of sera and other products produced, supplied and balance remaining during the year 1932-33.

Name of products	Opening balance	Quantity produced	Quantity returned	Total	Quantity supplied to		Quantity used in the Institute including wastage, etc.	Total	Stock on hand on 1st July 1933
					Civil Veterinary Department	Outside the State			
	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses	Doses
1. Anti-Rinderpest Serum	1,14,400	5,01,525	96,700	7,15,625	2,44,550	2,59,500	9,575	5,13,625	2,02,000 (5 c.c. a dose)
2. Anti-Hæmorrhagic Septicæmia Serum ...	253	38,606	12,846½	51,705½	25,052½	17,300	809½	43,162½	8,543 (15 c.c. a dose)
3. Anti Blackquarter Serum	596	44,530	8,818½	53,944½	35,006	11,500	20	46,526	7 418½ (15 c.c. a dose)
4. Anti-Anthrax Serum	...	18,730	...	18,730	100	1,000	128	1,228	17,502 (15 c.c. a dose)
5. Hæmorrhagic Septicæmia Vaccine ...	5,290	21,130	16,630	46,050	40,330	3,000	130	43,550	2,500 (5 c.c. a dose)
6. Black-quarter Filtrate	3,850	1,21,232	19,980	1,45,062	1,40,187	4,000	475	1,44,662	400 (5 c.c. a dose)
7. Sheep-pox Vaccine	24·995 c.c. (Conc.) 8,350 c.c.	59·8 c.c. (Conc.) 5,20,775 c.c.	... ..	84·795 c.c. (Conc.) 5,29,125 c.c.	55·05 c.c. (Conc.) 2,51,550 c.c.	... 7,300 c.c.	13·95 c.c. (Conc.) 2,65,250 c.c.	69 c.c. (Conc.) 5,24,100 c.c.	15·795 c.c. (Conc.) 5,025 c.c.
8. Rinderpest Virus									

S. D. ACHAR,
Superintendent, Serum Institute.

Statement showing the products supplied to the different Provinces, States, etc., during the year 1932-33.

Products	Mysore	Hyderabad	Coorg	Baroda	Cochin	Used in the Institute	Total
	Doses	Doses	Doses	Doses	Doses	Doses	Doses
Anti-Rinderpest Serum ...	2,44,550	2,30,000	29,000	500	...	(a) 9,575	5,13,625
Anti-Hæmorrhagic Septicæmia Serum. ...	25,052½	17,000	...	...	300	(b) 809½	43,162½
Anti-Blackquarter Serum ...	35,006	11,500	...	...	...	20	46,526
Anti-Anthrax Serum ...	100	1,000	...	...	...	128	1,228
Hæmorrhagic Septicæmia Vaccine.	40,330	1,500	...	1,590	...	130	43,550
Black-quarter Filtrate ...	1,40,187	4,000	...	..	...	(c) 475	1,44,662
Sheep-pox Vaccine ...	55·05 c.c. (Conc.)	...	...	...	..	13·95 c.c. (Conc.)	69 c.c. (Conc.)
Rinderpest Virus ...	2,51,550 c.c.	...	7,300 c.c.	...	...	(d) 2,65,250 c.c. (Conc.)	5,24,100 c.c. (Conc.)

Remarks :—

(a) Including 1,300 doses discarded and 1,000 doses used for inoculating Amritmahal cattle by the Institute Veterinary Inspectors.

(b) Including 20 doses discarded.

(c) Including 320 doses used at Hebbal by the Institute Veterinary Inspectors.

(d) Including 2,39,675 c.c. discarded; including 1,050 c.c. used for inoculating Amritmahal cattle by the Institute Veterinary Inspectors.

Statement showing the financial results of the working of the Serum Institute during the year 1932-33.

Receipts			Expenditure					
Sale of sera, vaccines and other products including those supplied to the Civil Veterinary Department and the stock of products, animals as on 30th June 1933	Sale of animals, carcases, etc.	Total	Purchase of animals	Feeding charges	Apparatus, chemicals and glassware	Contingencies	Salaries and travelling allowances of officers and staff	Total
Rs. a. p.	Rs. a. p.	Rs.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs.
2,08,724 3 0	4,632 13 0	2,13,357	24,313 4 0	15,121 6 0	6,716 15 6	9,923 1 0	36,095 8 0	92,173

Table showing the details of smears examined at the Mysore Serum Institute, Hebbal, Bangalore, during the year 1932-33.

Disease suspected	Number of smears		
	Positive	Doubtful	Negative
Anthrax	147	3	19
Black-quarter	87	12	18
Hæmorrhagic Septicæmia	141	31	35
Johne's Disease	0	0	14
Piroplasmosis Bovine—P. bigeminum	0	0	6
Do T. mutans	167	...	716
Do Canine—P. gibsoni... ...	1	...	6
Do Equine—N. equi	1	...	19
Miscellaneous (Putrefactive, etc.)	585	...	1,221

S. D. ACHAR,
Superintendent, Serum Institute.

List of products issued from the Mysore Serum Institute, Bangalore, and current prices as sanctioned by the Government of Mysore.

Serial No.	Name of product	Rates*			Remarks
		Rs.	a.	p.	
1	Anti-Rinderpest Serum, Quality I	0	2	0	Per dose of 5 c.c.
2	Anti-Rinderpest Serum, Quality II	0	1	6	Do
3	Anti-Hæmorrhagic Septicæmia Serum	0	4	0	Per dose of 15 c.c.
4	Anti-Blackquarter Serum	0	4	0	Do
5	Anti-Anthrax Serum	0	4	0	Do
6	Hæmorrhagic Septicæmia Vaccine	0	2	0	Per dose of 5 c.c.
7	Black-quarter Filtrate	0	3	6	Do
8	Black-quarter Bacterin	0	3	6	Do
9	Rinderpest Virus (supplied in 1 oz. and 2 oz. bottles) ...	0	1	0	Per dose of 1 c.c.
10	Sheep-pox Vaccine (supplied in ampoules)	0	6	0	Per 100 doses.
11	Rinderpest Goat Virus (supplied in 1 oz. and 2 oz. bottles).	3	8	0	For 15 c.c.

* These rates are for delivery at the Institute premises and are inclusive of the cost of packing, cases, bottles, etc

S. D. ACHAR,
Superintendent, Serum Institute.

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